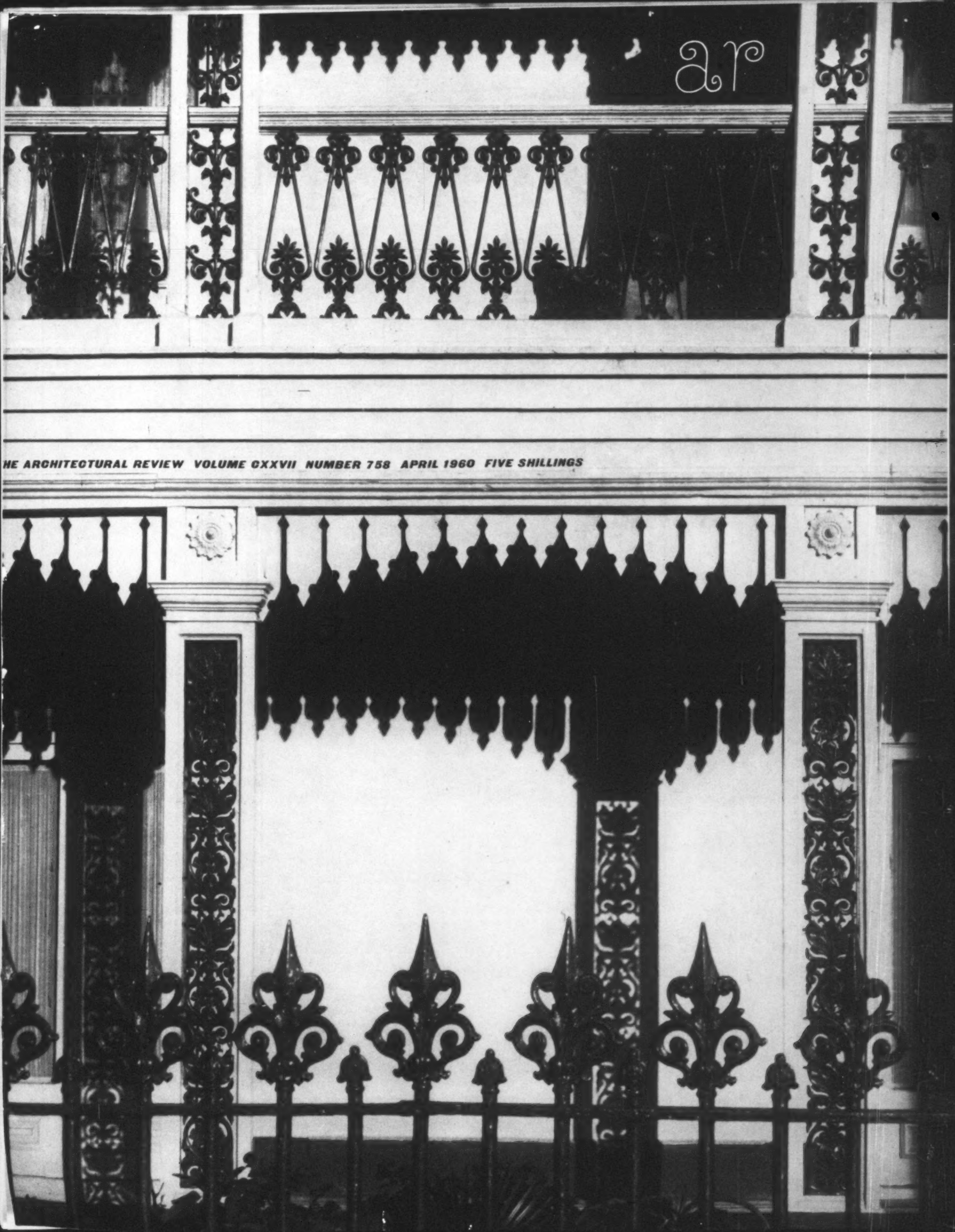

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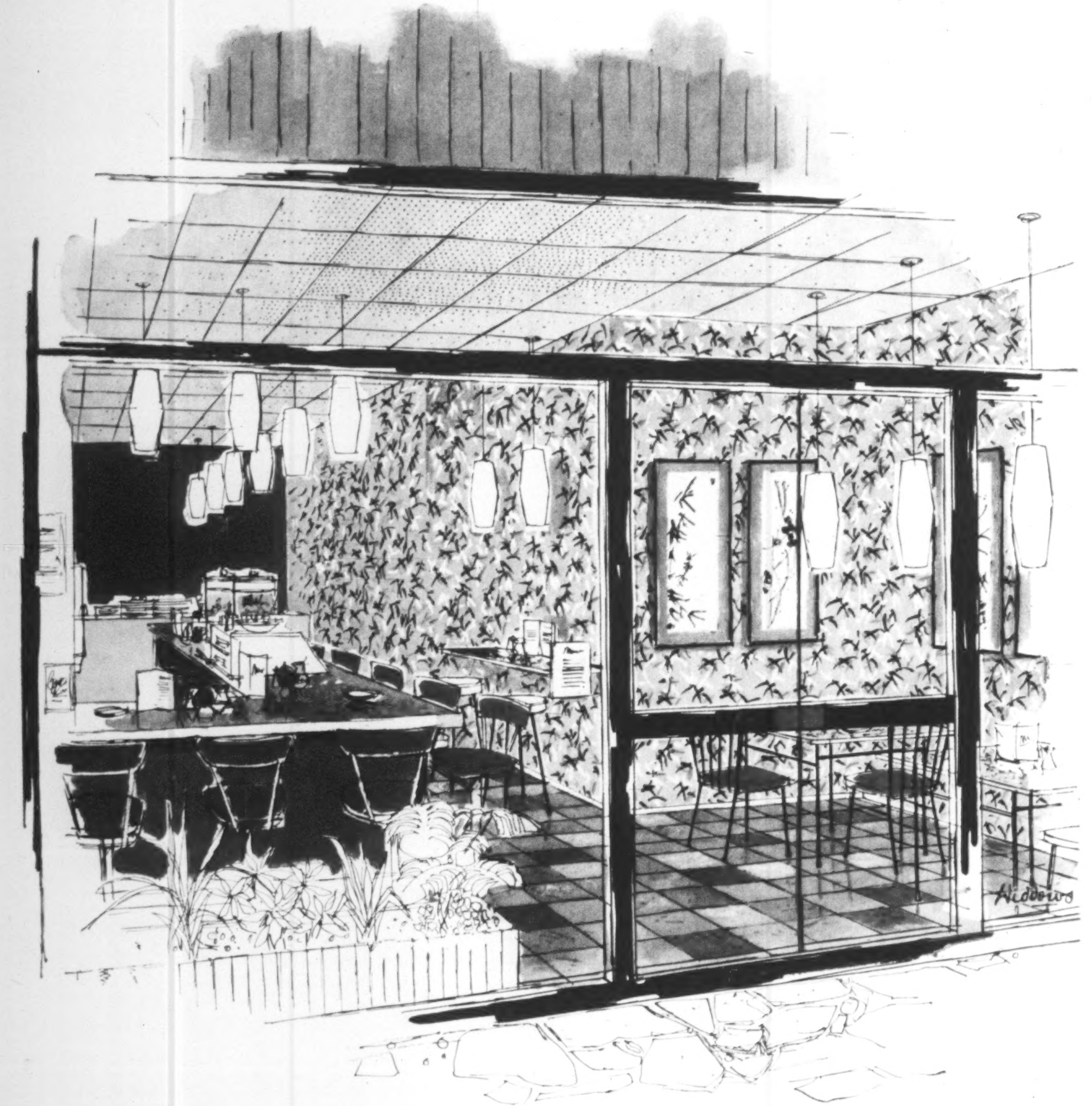
HE ARCHITECTURAL REVIEW VOLUME CXXVII NUMBER 758 APRIL 1960 FIVE SHILLINGS



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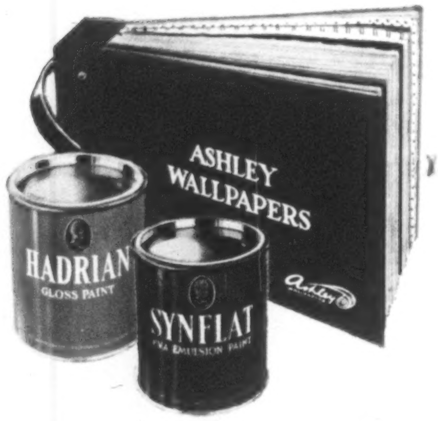
Ceiling	SYNFLAT JONQUIL
Back Wall	SYNFLAT, PEACOCK
Panel under Front Counter	HADRIAN GLOSS, FLAME
Panel of Back Counter	HADRIAN GLOSS, LEMON
Door and Windows, exterior framing	HADRIAN GLOSS, BLACK
Push Bar of Door, exterior	HADRIAN GLOSS, BLACK AND FLAME



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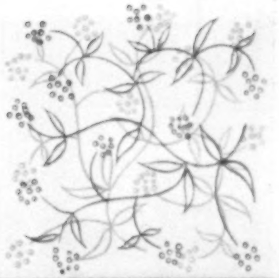
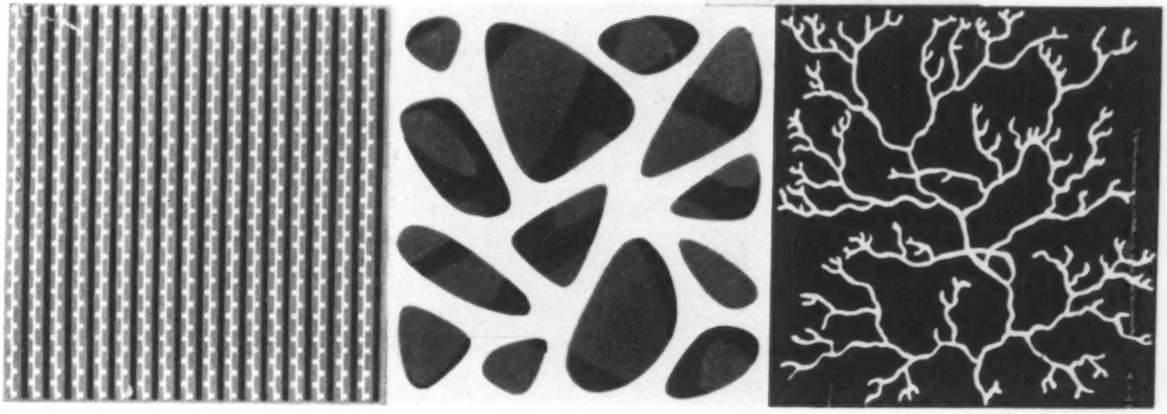
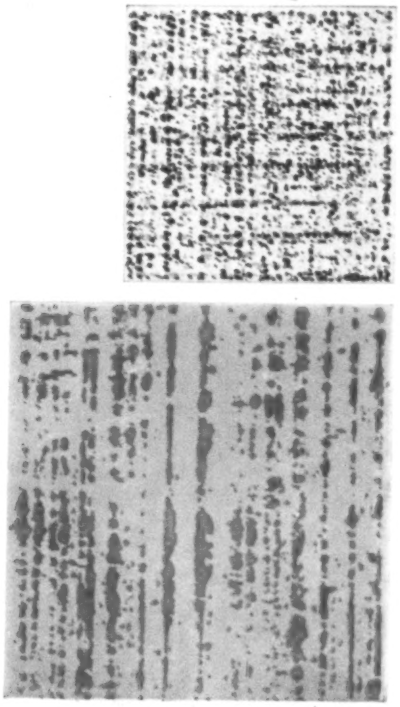
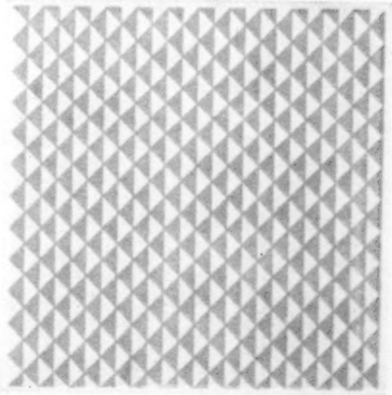




PILKINGTON'S TILES



The wide range of Pilkington's tiles, both plain coloured and decorative, will delight you at once with its practicability and with its creative possibilities. And the skilled staff of Pilkington's Design Department will give you every assistance you need.



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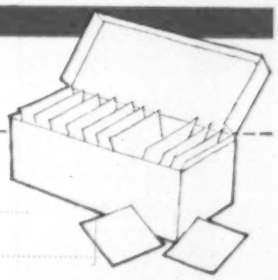

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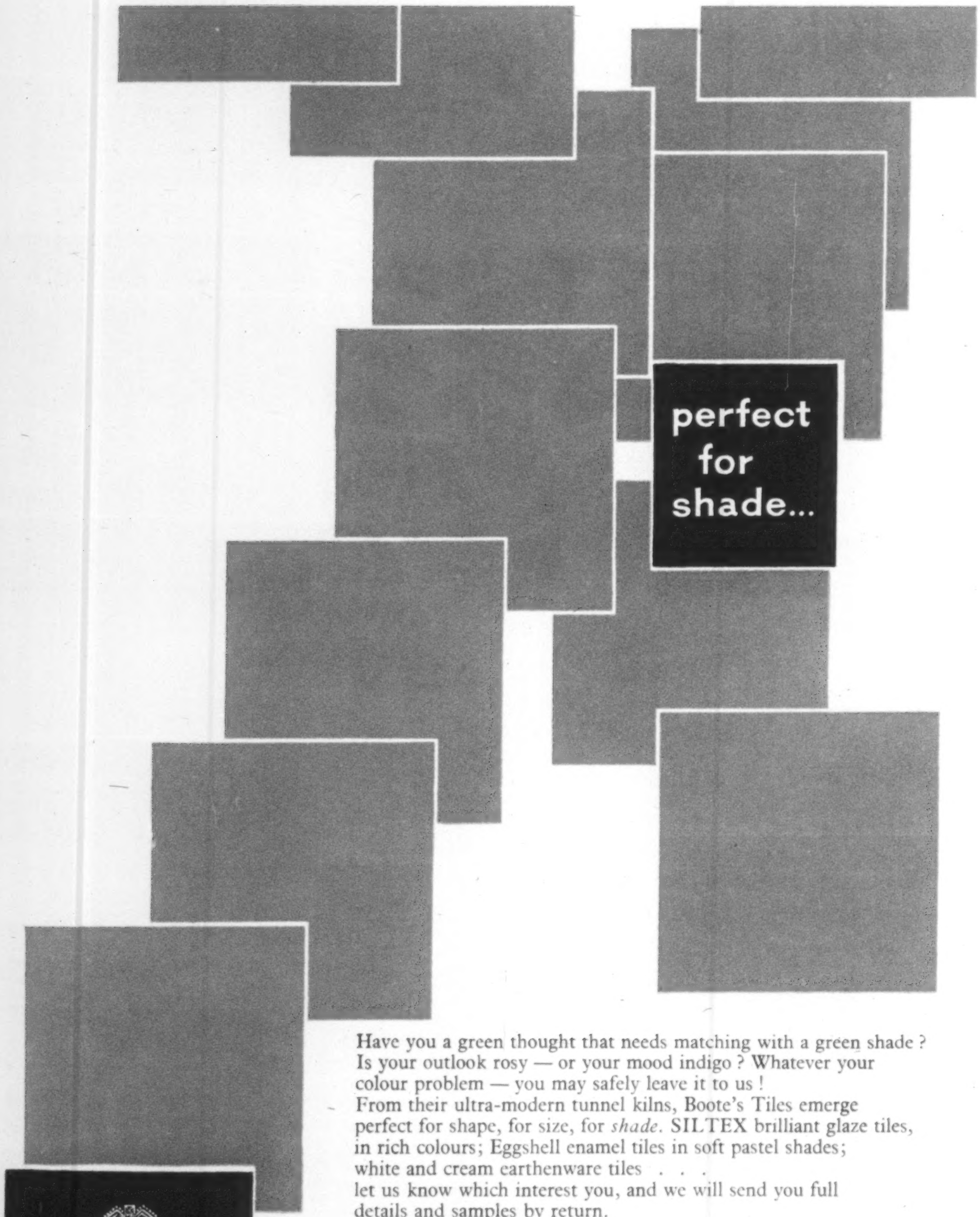

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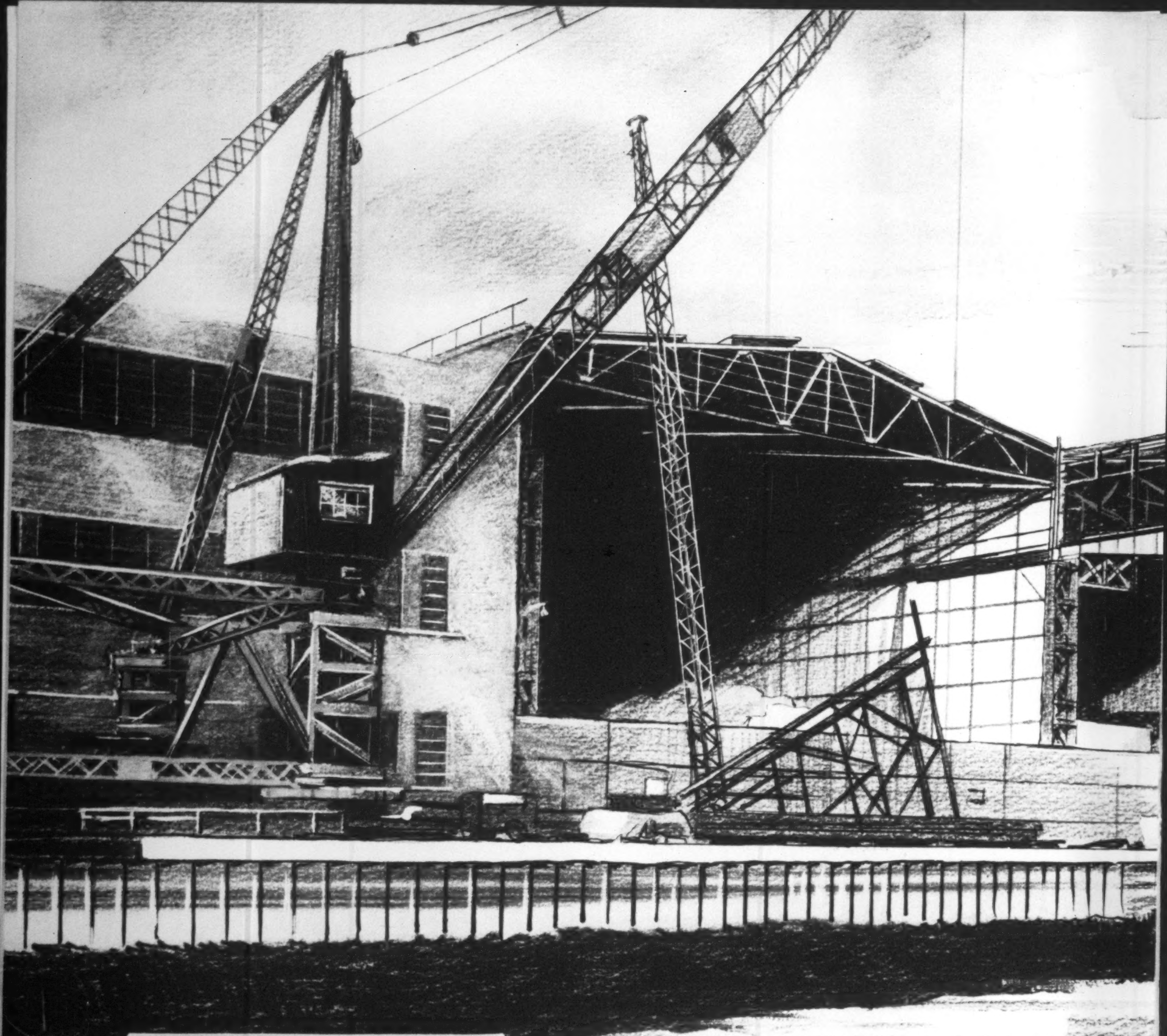

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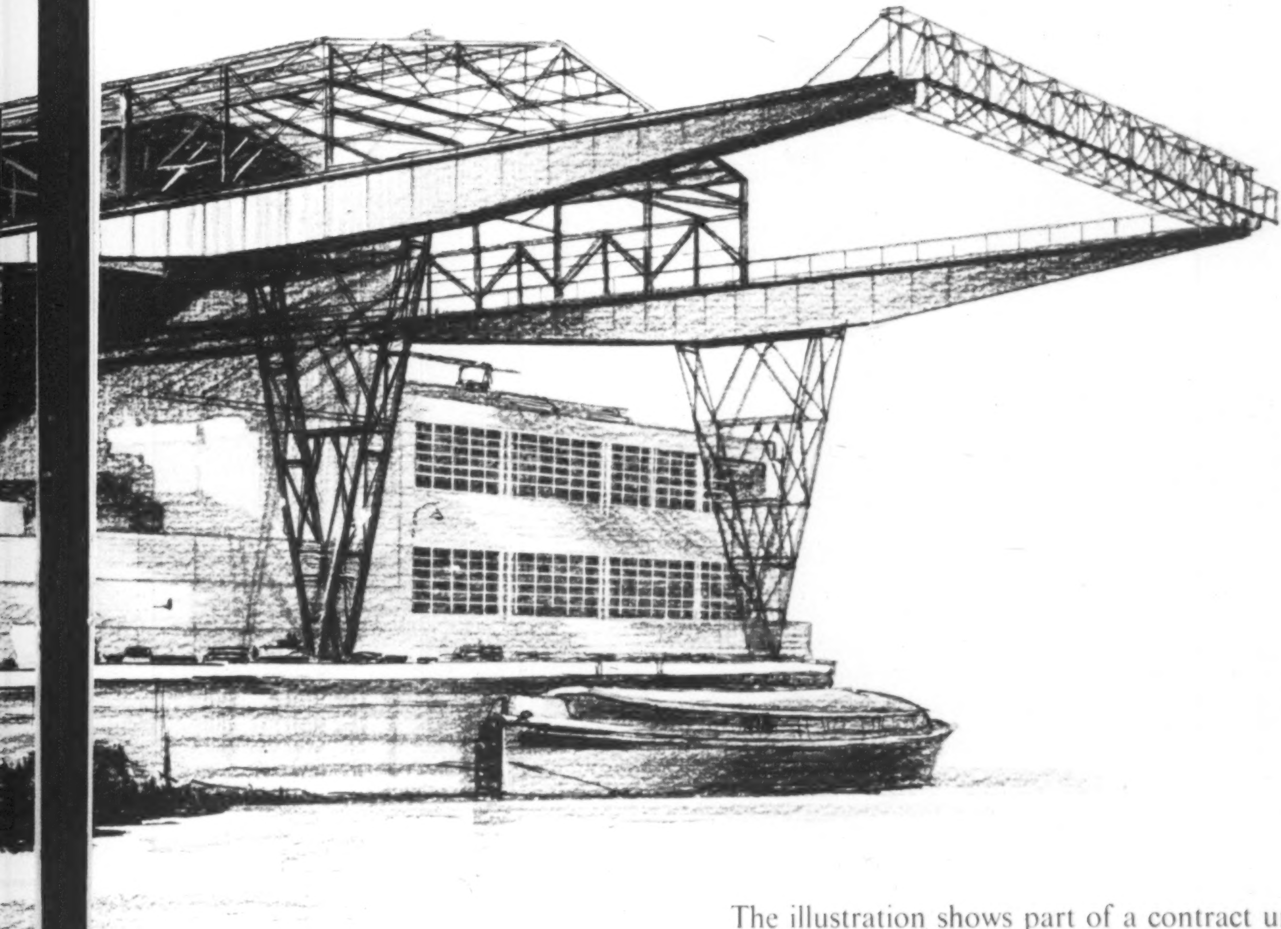

The illustration shows part of a contract undertaken for Thames Board Mills Limited, at Warrington, Lancashire. The project comprises large storage bays with direct loading facilities from the new diversion of the River Mersey at Arpley Meadows; the 50 ft. high gantry which will accommodate a travelling crane, has a 50 ft. projection over the quay side.

ENGINEERS

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meets every requirement and can provide the basis of a storage hut or the shape of a city. Structural steelwork cannot be equalled for strength, endurance, adaptability and cost.

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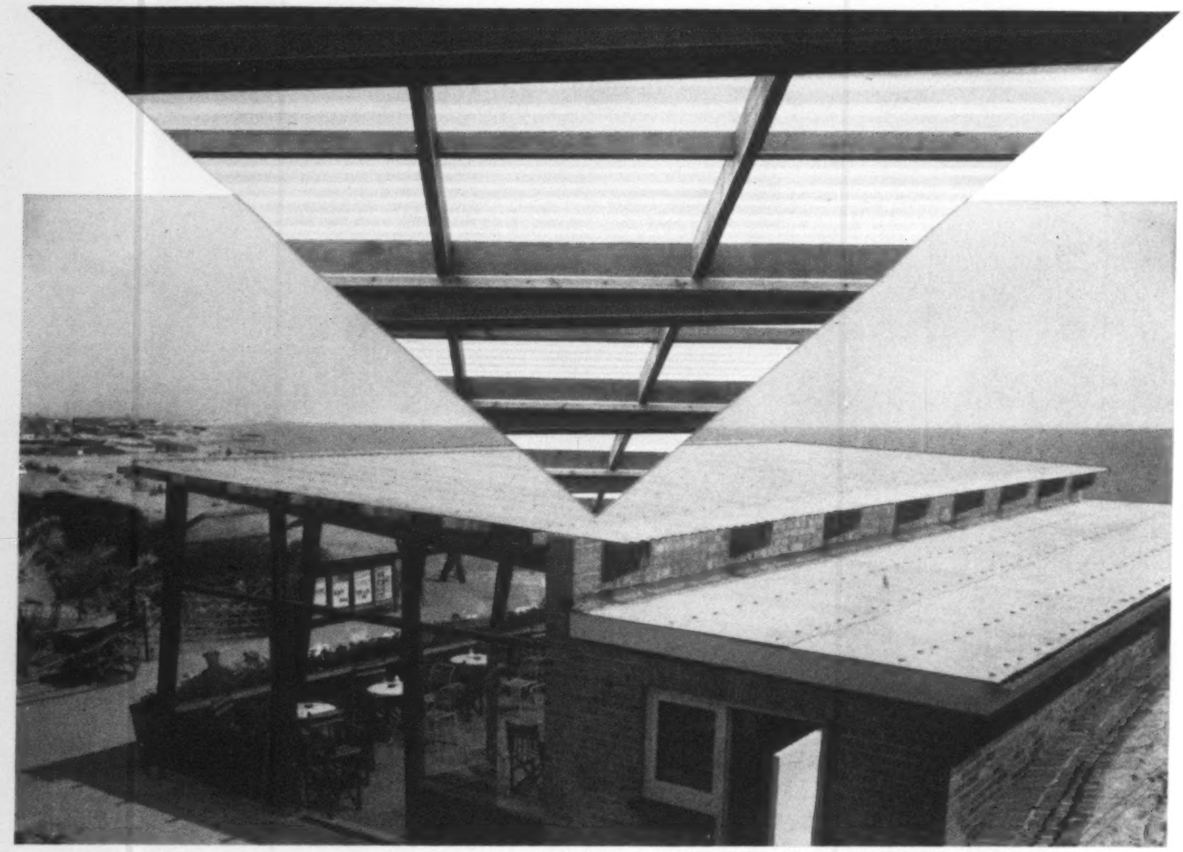

FILON used for the roof of a Corporation Cafe at the Redoubt, Eastbourne

the economical translucent structural sheeting—

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FILON is ideal for rooflights, cladding and canopies in many kinds of buildings and it is available in flat sheet (in roll form if required) or in standard profiles to match corrugated iron, aluminium and asbestos sheeting. FILON is approved by Local Authorities, Ministry of Works, the Admiralty, War Office and Air Ministry. Write for full details. **NEW! Coloured FILON in any standard profile and special decorative profiles. Colour samples on request.**

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strong light translucent

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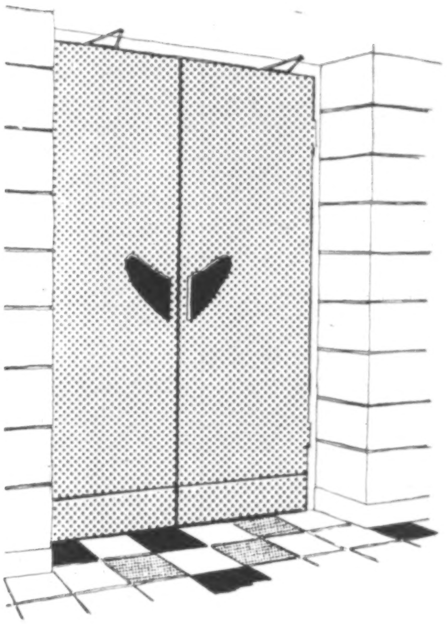

Only the SLIM arms can be seen

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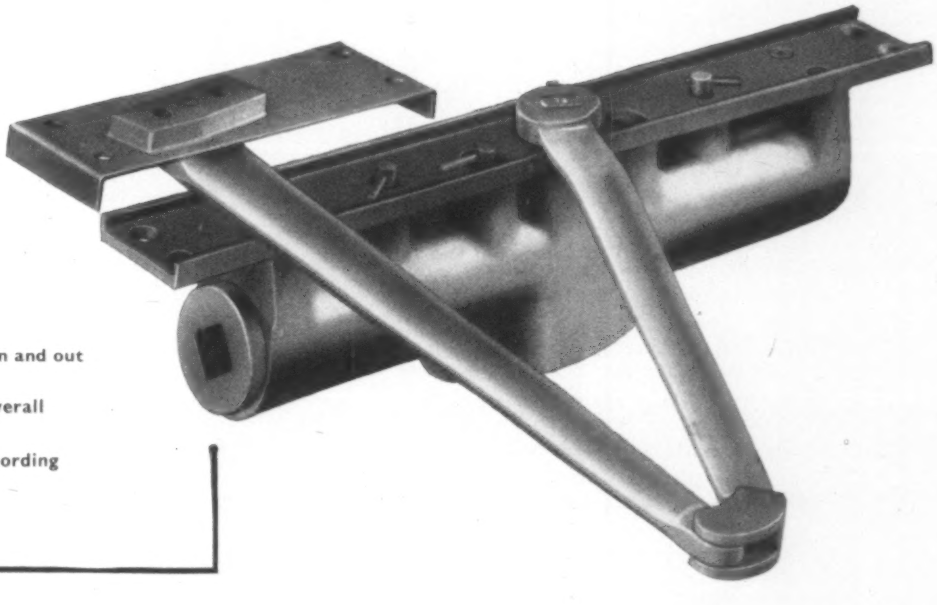
THE BRITON 500

Concealed Door Closer



★ Smooth and silky check-action.

★ Bounce completely eliminated.

★ Closing and latch speed fully adjustable.

★ Stand open device put in and out of action as desired.

★ Body only 1⅜in. wide, overall length 13in.

★ Opens to 90° or 180° according to fixing position.

★ No oil leakage.

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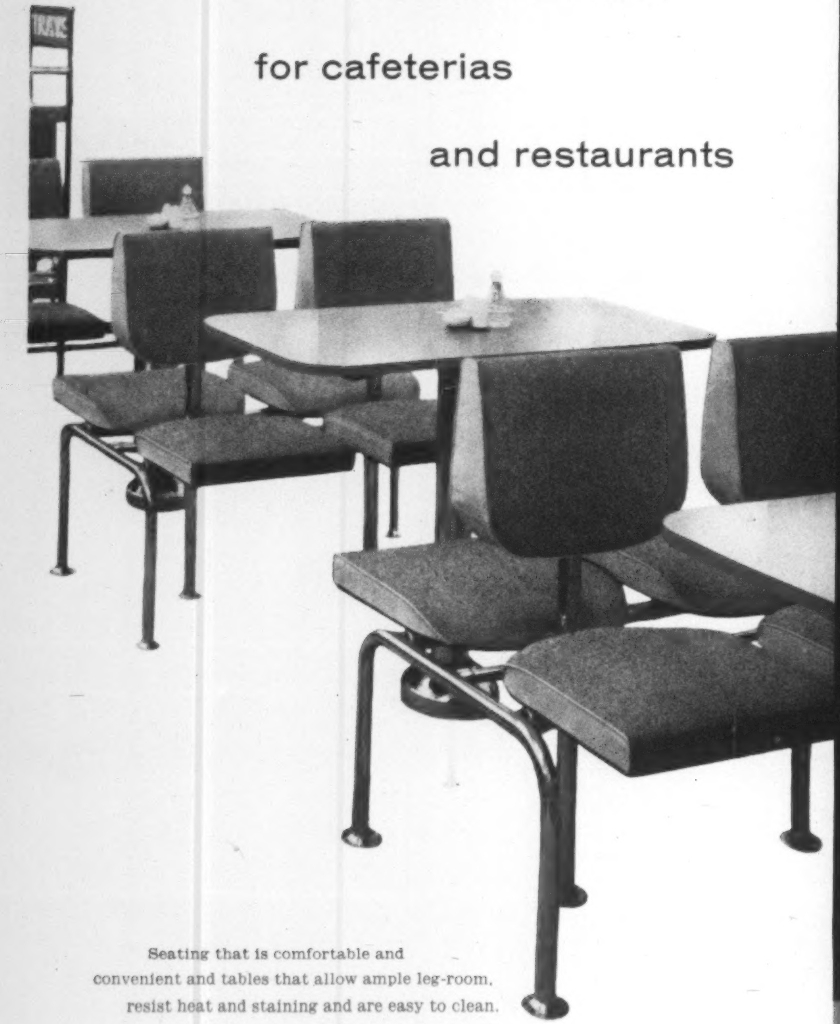
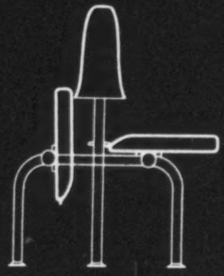
William Newman & Sons Ltd. HOSPITAL STREET, BIRMINGHAM, 19.

Tip-up seating and
down-to-earth tables
for cafeterias
and restaurants

PEL

booth furniture





Seating that is comfortable and convenient and tables that allow ample leg-room, resist heat and staining and are easy to clean. That sums up a striking new range of Pel booth furniture; but there is more to it than that. It includes two-seat or four-seat 'tip-up' units with pedestal or wall tables. The tables are 2' 6" high, supported by a single enamel or chromium-plated column for easy cleaning and maximum leg-room. The edges are overlapped by a flush-fitting and matching plastic veneer top, heat- and stain-resistant. The underside has a lacquer-sealed finish. Attractive colour schemes and designs are available for chair coverings and table-tops. Full details and specifications will gladly be sent on request

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TAW/31

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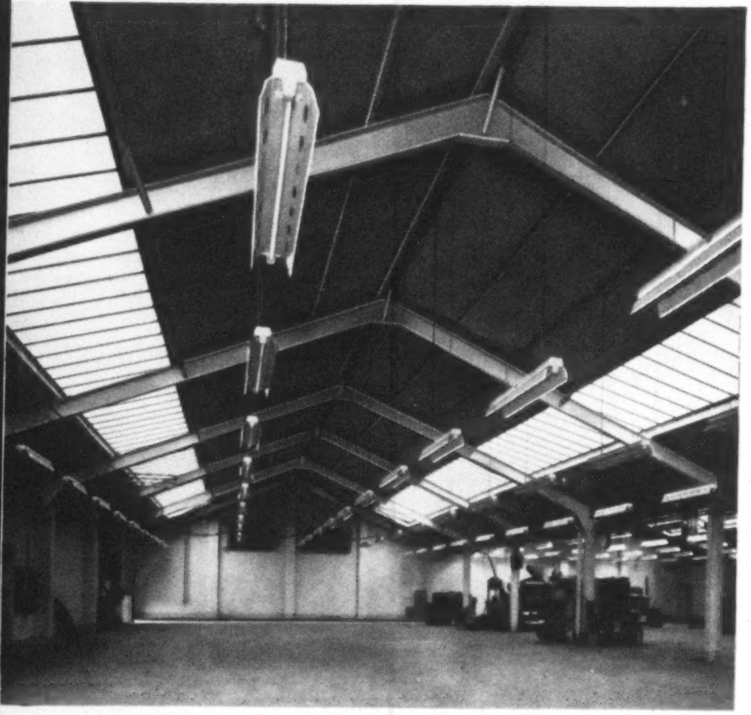

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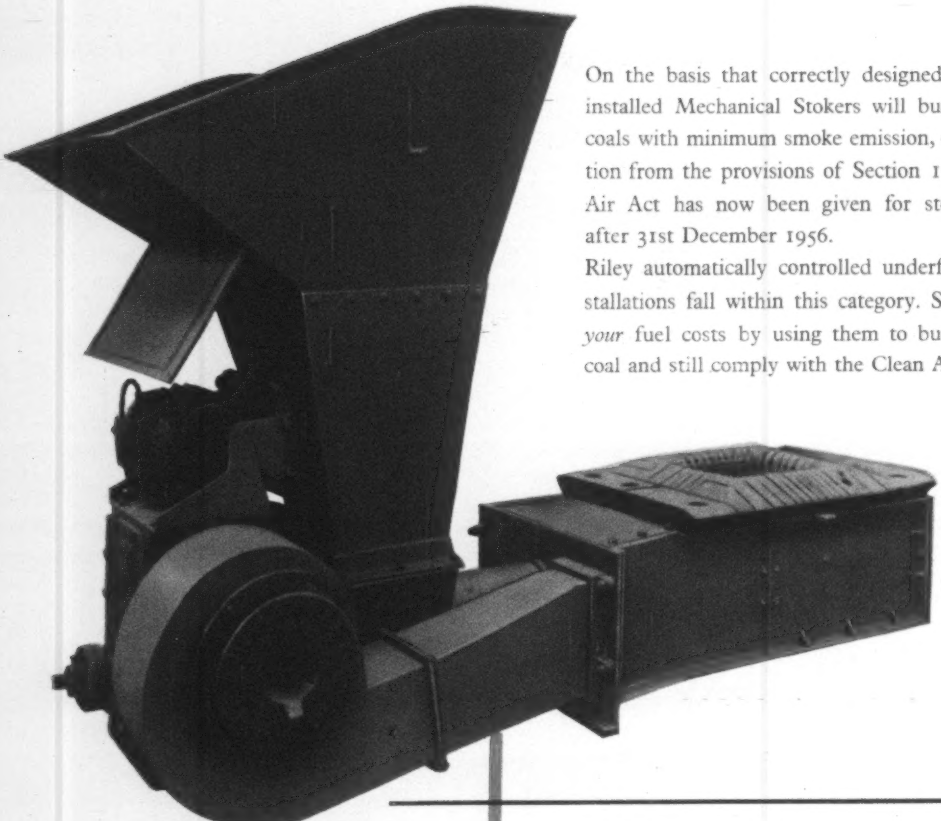

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Riley automatically controlled underfeed stoker installations fall within this category. So why not cut *your* fuel costs by using them to burn bituminous coal and still comply with the Clean Air Act.

The illustration shows a Riley Industrial hopper feed stoker, suitable for vertical boilers for steam-raising, and the larger hot water heating boilers.

There's a Riley Stoker for every need

Riley Robot hopper type and Direkto bunker feed stokers are available for sectional, vertical and water tube boilers and for heat treatment processes, and Riley Class 'B' hopper type machines for Lancashire, Cornish and Economic Boilers. All types are strong and robust, designed to give trouble-free service for many years with low maintenance costs.

For booklets giving full details of these, also Riley Chain Grate Stokers, write to:

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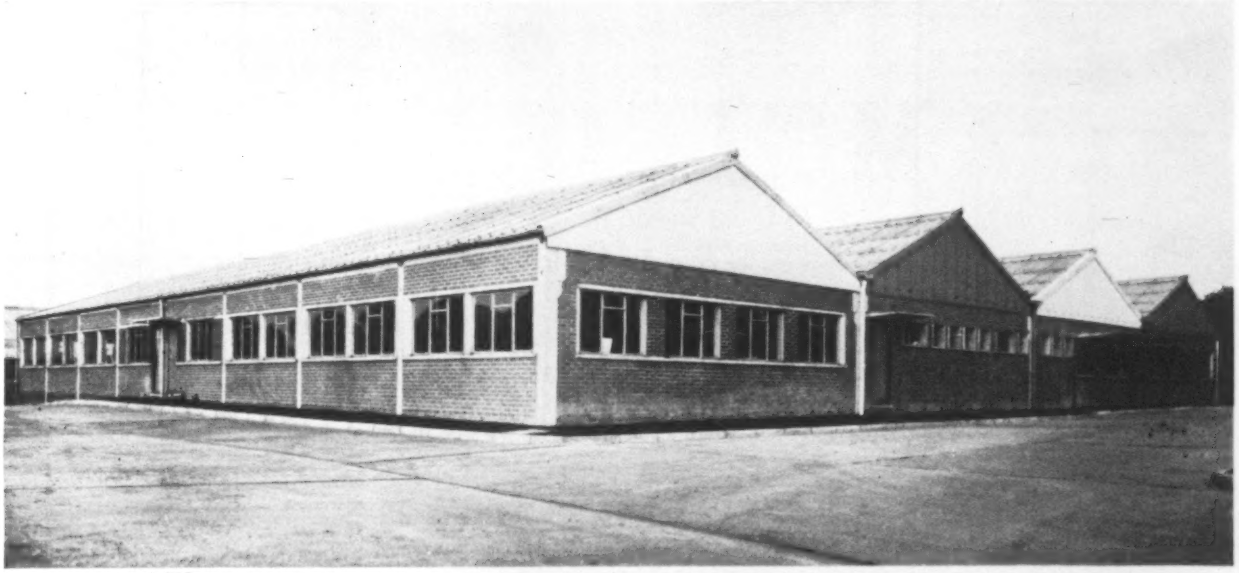

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If you have a building problem or an extension to existing premises query — why not get into touch with Tylers of Tonbridge? Our assistance is prompt — and practical — and you have the benefit of actual manufacturer's prices. And, of course, our work conforms to the B.S.S. Code of Practice C.P. 114/57. Send for our interesting literature.

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probably the most beautiful flooring the world has ever known

Amtico is solid vinyl.
Five important words sum up the tremendous advantages of solid (or homogeneous) vinyl over ordinary (or combination) vinyl. Colour. Design. Translucency. Resilience. Wear.
The most subtle or brilliant *colours*, arranged in the most arresting *design*, may be used in Amtico flooring. Its soft *translucency*, never before achieved in interior design, comes from Amtico's high proportion of basic vinyl resin to other ingredients. Its natural *resilience* gives unsurpassed comfort under foot, and means that Amtico is quieter than flooring which does not 'give'. And because it is resilient, Amtico will not crack, splinter or break down. This solid flooring in use for over 12 years in America shows no signs of *wear*. In addition to these unique features, Amtico also offers, of course, vinyl's well-known advantages of easy maintenance, hygiene and safety.
Amtico is introduced in a limitless range of colours and patterns.
Plain. Marble. Terrazzo. Renaissance. Wood grain. Cork. Eldorado Metal. Stardust. And special designs that repeat elements or whole patterns from curtains, murals or other decorative features. This offers vast scope to the architect and designer for creating original floor — and wall — coverings.
Stocks are held by Humasco, who also offer a technical and design service.
It is quite impossible to show, within the limitations of print reproduction, how beautiful Amtico flooring is.
Please see it. You are invited to the Amtico Display, where many varied floors have been laid and can be seen, at Humasco's new showrooms, designed by Paul MacAlister of New York (former President of the American Institute of Designers) who has been over here to supervise the work. You may care to ring CITy 1056, or write to the address below, suggesting when you can be expected.

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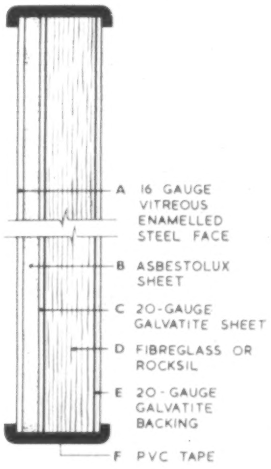
Curran SEAPORCLAD INFILL PANEL TYPES 1 AND 2

These vitreous enamelled steel panels are two of a wide range manufactured by Edward Curran Engineering Ltd. Curran vitreous enamel is a true glass surface fired at 860 C on steel; it is permanent, will not fade and is highly resistant to chemical attack. Curran Seaporclad provides permanent colour and excellent insulation. It is light, versatile, quickly assembled and requires the minimum maintenance. Supplied in most colours of the British Standard 101 Range; full gloss, matt or semi-matt; stippled, marbled, etc. Panels are available up to 8′×4′—recommended maximum size 6′×4′. Curran Seaporclad complies with the standards and specifications laid down by the Vitreous Enamel Development Council.

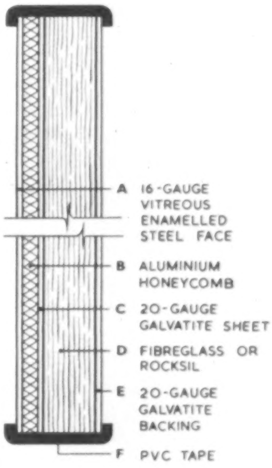

A 16 GAUGE VITREOUS ENAMELLED STEEL FACE
B ASBESTOLUX SHEET
C 20-GAUGE GALVATITE SHEET
D FIBREGLASS OR ROCKSIL
E 20-GAUGE GALVATITE BACKING
F PVC TAPE

TYPE 1

The face is bonded with neoprene to ¼", ⅜" or ½" asbestolux sheet, bonded in turn to a galvatite sheet which forms a vapour barrier. The insulating material—which can be varied in thickness to meet the required 'U' value—is contained in a galvatite backing tray. Panel edges are sealed with PVC tape.

'U' Value	Weight per sq. ft.	Panel Thickness	Core Thickness
.174	7 lb. 2 oz.	1⅜"	1"
.128	7 lb. 6 oz.	1⅞"	1½"
.100	7 lb. 10 oz.	2⅜"	2"

Calculated on the basis of ¼" asbestolux sheet


A 16-GAUGE VITREOUS ENAMELLED STEEL FACE
B ALUMINIUM HONEYCOMB
C 20-GAUGE GALVATITE SHEET
D FIBREGLASS OR ROCKSIL
E 20-GAUGE GALVATITE BACKING
F PVC TAPE

TYPE 2

The face is bonded with neoprene to ¼", ⅜" or ½" aluminium honeycomb core, bonded in turn to a galvatite sheet. Insulating material—varied in thickness to meet the required 'U' value—is contained in a galvatite backing tray. Panel edges sealed with PVC tape.

'U' Value	Weight per sq. ft.	Panel Thickness	Core Thickness
.156	6 lb. 4¼ oz.	1⅜"	1"
.118	6 lb. 8¼ oz.	1⅞"	1½"
.094	6 lb. 12¼ oz.	2⅜"	2"

Calculated on the basis of ¼" aluminium honeycomb

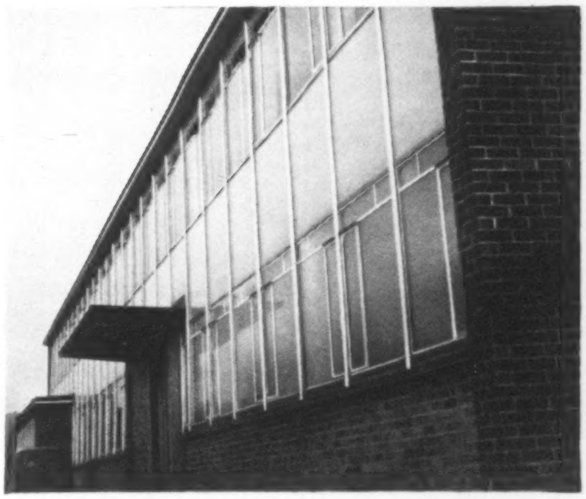
NEW BRITISH RAILWAYS BUILDING, READING

Design: Chief Civil Engineer,
British Railways, Western Region,
Contractors: Turriff Construction Company

All panels used are Curran Seaporclad Type 1. Overall thickness in this case is 1⅜" as the asbestolux sheet is ¼" thick. Some panels used on this contract were up to 52" x 59". Colour BS7/082 (semi-matt finish).

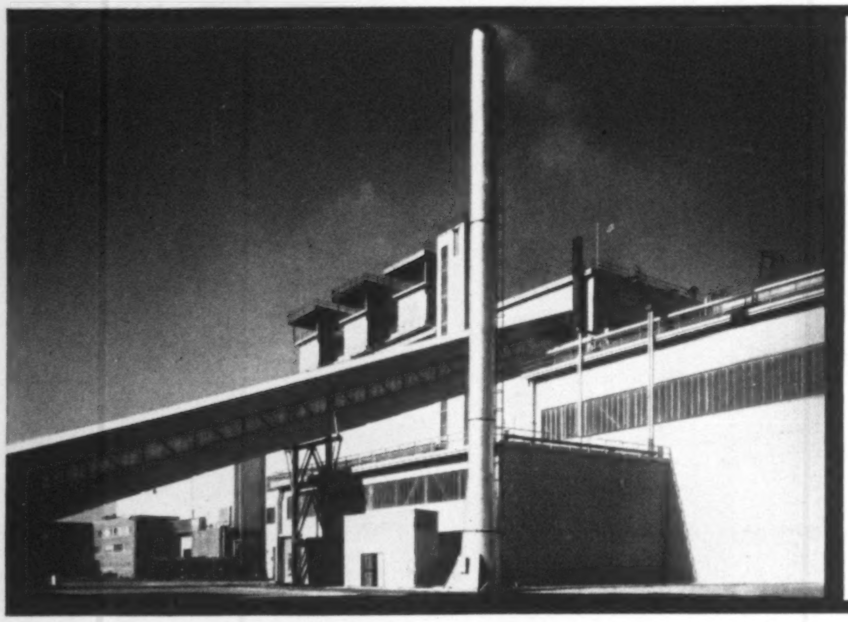
Seaporclad Infill Panels are also being manufactured and used in Australia, Austria, Belgium, Brazil, Canada, Chile, Denmark, France, Germany, Holland, Italy, Japan, Luxembourg, New Zealand, Norway, South Africa, Spain, Sweden, Switzerland, Turkey, United States of America.

Full technical information is available from the sole manufacturers in the British Isles: Edward Curran Engineering Ltd, Architectural Division, Cardiff. Telephone: Cardiff 33644.



A PRODUCT OF THE CURRAN ORGANIZATION

patent glazing is like windows only BIGGER and often it's IN THE Roof And it's very quick to put up

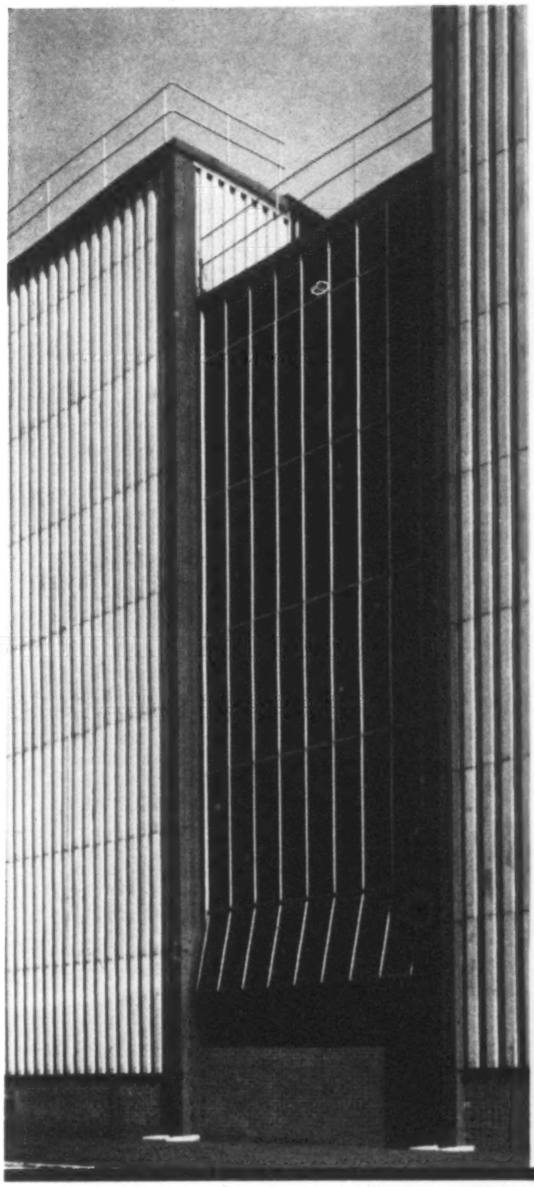


New buildings for the Steel and Tinplate Divisions of The Steel Company of Wales Limited—Abbey Works at Port Talbot and Velindre Works at Swansea.

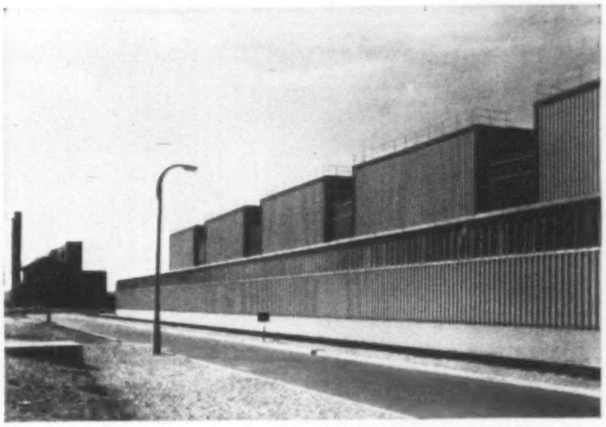
Architects:
Sir Percy Thomas & Son,
Cardiff, Swansea and Shrewsbury.

Consulting Engineers:
W. S. Atkins & Partners.

The Steel Company of Wales works at Port Talbot and Swansea are among the best known post-war industrial developments. What is perhaps less well known is the part aluminium played in their construction. Williams & Williams ALUMINEX PATENT GLAZING was chosen for its speed of erection, favourable balance between prime and maintenance costs, and the ease with which broken panes of glass can be replaced at any time.

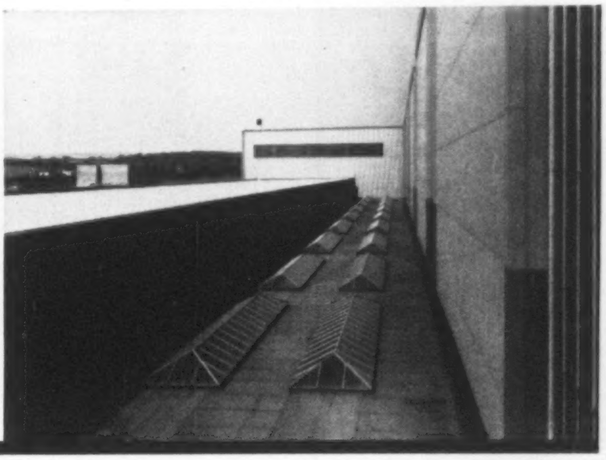


Close-up of Aluminex Sidewall Glazing on the west side of Velindre Works.



Continuous Aluminex Sidewall Glazing on the east side of the shipping bay, Velindre Works. The roofs of both Velindre and Abbey Works are "high-low" constructed—the transverse clerestories are fitted with Aluminex continuous opening lights for extra daylight and ventilation.

Among the Aluminex decklights in the City of Steel are these on the general stores building where they provide overhead daylight at the lower levels, supplementing the general lighting of the main building by Aluminex sidewall glazing.



So at both Abbey and Velindre Works, the ribbed steel wall sheeting is married to great expanses of patent glazing—ALUMINEX PATENT GLAZING for weather tightness and resistance to corrosion. Just one more example of the way Williams & Williams products are contributing their efficiency to better buildings everywhere.

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Williams & Williams make steel windows of every description, ALOMEGA and other aluminium windows, ROFTEN movable steel partitioning, ALUMINEX patent glazing, WALLSPAN curtain walling and many other products, all of which can be seen at our permanent exhibition at 36, High Holborn, London, W.C.1

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Architects:
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Consulting Engineer:
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Britain's tallest office building

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On the basis of a site investigation carried out by Soil Mechanics Limited the consulting engineer to the Millbank Development Project specified bored shaft piles to act as foundations and carry the structures.

The project includes the thirty-two storey Tower Block which will be Britain's tallest building. This 45,000-ton skyscraper is carried on 163 bored shaft piles 36 inches in diameter. Their construction has been carried out by Soil Mechanics Limited and the work has been completed 3 weeks ahead of the planned schedule.

THE MILLBANK DEVELOPMENT PROJECT, being carried out by the Legal & General Assurance Society for Messrs. Vickers Ltd, is situated between the Tate Gallery and Lambeth Bridge.

Height of Tower Block 387 ft.	**Total number of bored shaft piles 495**
Number of storeys 32	**Maximum depth 95 ft**

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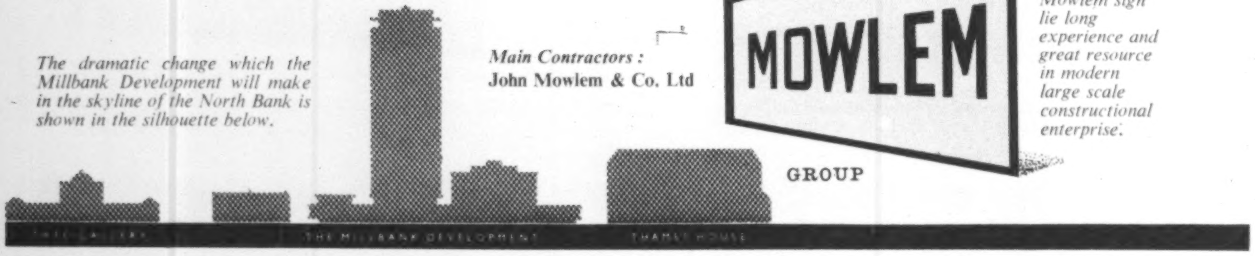
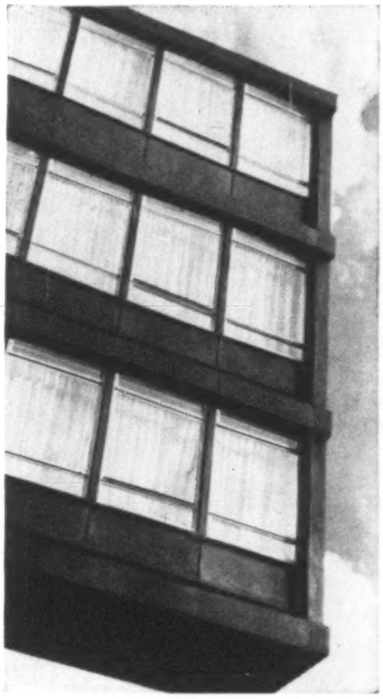
MOWLEM
GROUP

Behind the Mowlem sign lie long experience and great resource in modern large scale constructional enterprise.

Main Contractors:
John Mowlem & Co. Ltd

The dramatic change which the Millbank Development will make in the skyline of the North Bank is shown in the silhouette below.





BRONZE CLADDING

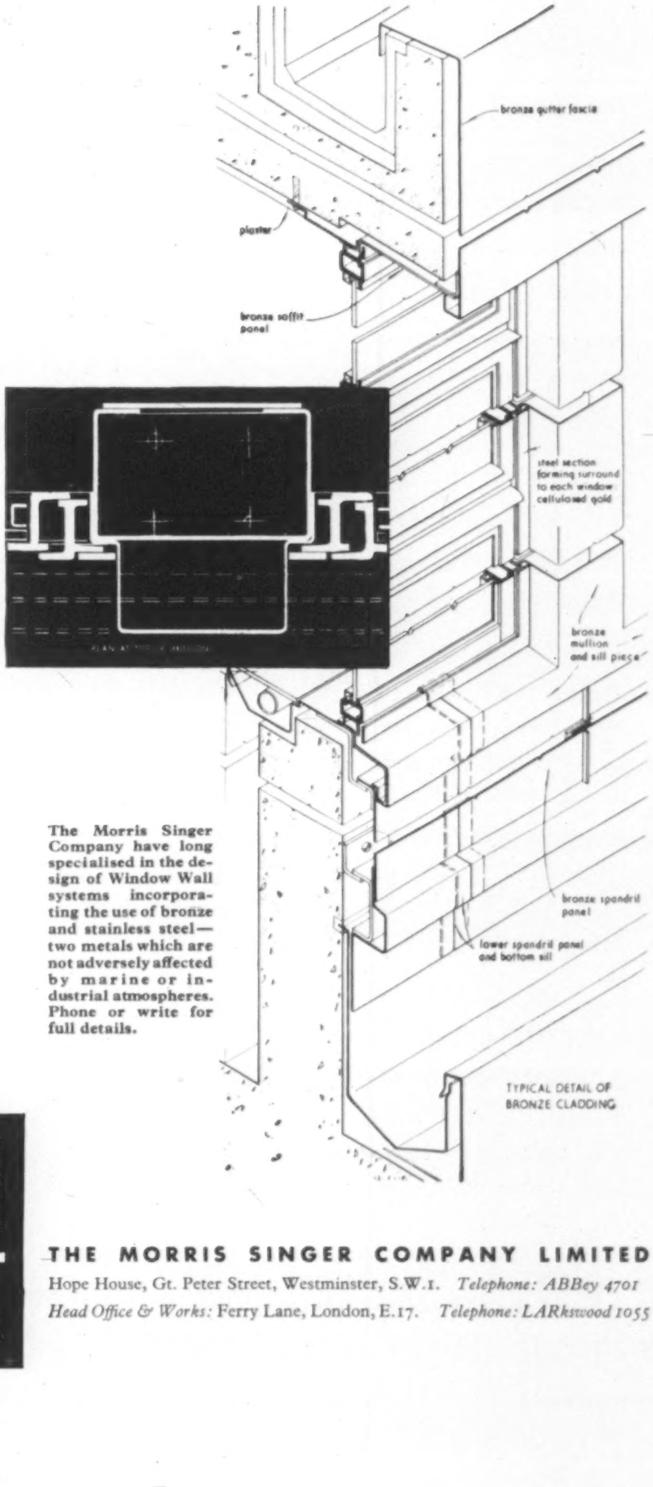
Peter Robinson's Store, Strand London

Architects: Denys Lasdun & Partners

Bronze was chosen for cladding the main facade of this fine new building in order to effect a black or bronze black surface which would maintain its colour and texture by natural weathering in the London atmosphere.

As bronze attains this dark colour only after many years of exposure it was necessary to accelerate the process by treating the surface of the pressings. This was achieved by using the two natural weathering agents.

Bronze treated in this manner will retain its colour permanently, provided that precautions are taken to obviate electrolytic action.


bronze gutter fascia
plaster
bronze soffit panel
steel section forming surround to each window: cellulosed gold
bronze mullion and sill piece
bronze spandril panel
lower spandril panel and bottom sill
PLAN AT TYPICAL MULLION

TYPICAL DETAIL OF BRONZE CLADDING

The Morris Singer Company have long specialised in the design of Window Wall systems incorporating the use of bronze and stainless steel—two metals which are not adversely affected by marine or industrial atmospheres. Phone or write for full details.

Morris Singer

THE MORRIS SINGER COMPANY LIMITED

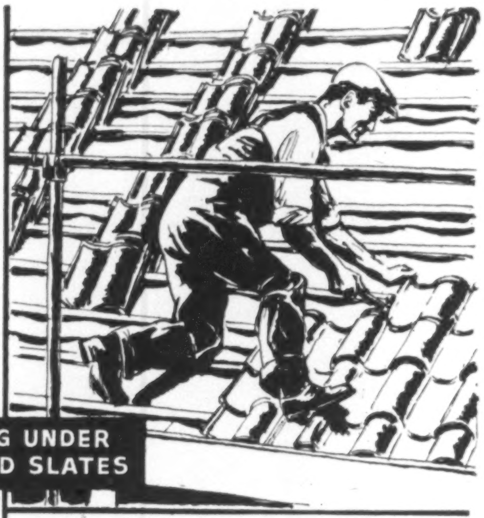
Hope House, Gt. Peter Street, Westminster, S.W.1. *Telephone: ABBey 4701*
Head Office & Works: Ferry Lane, London, E.17. *Telephone: LARkswood 1055*

MOISTOP
TRADE MARK

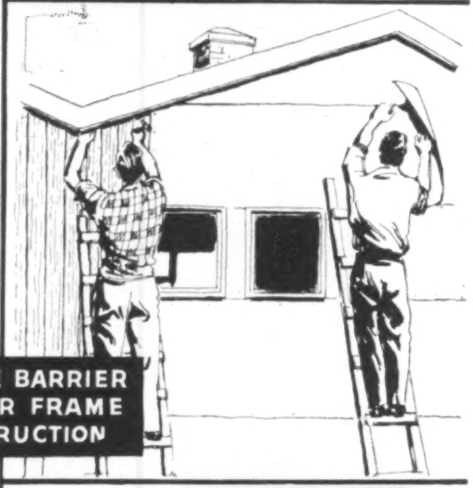
POLYTHENE
COATED

REINFORCED

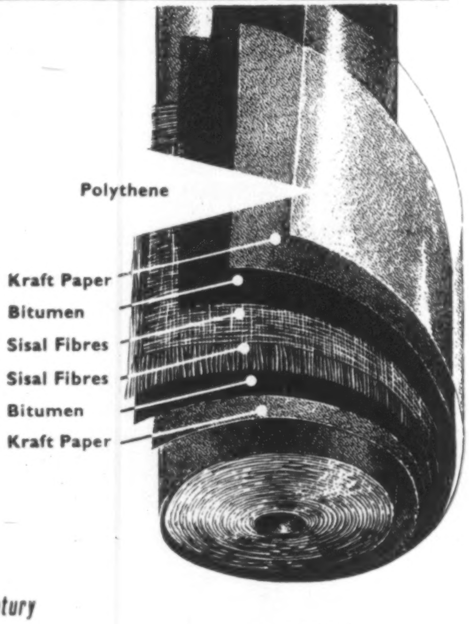
MOISTURE VAPOUR BARRIER



SARKING UNDER TILES AND SLATES



MOISTURE BARRIER IN TIMBER FRAME CONSTRUCTION



MOISTOP — is a SISALKRAFT product reinforced with unspun sisal fibres in the longitudinal and cross directions. The fibres are totally enclosed by two layers of high grade bitumen, which in turn are faced with tough, kraft paper, and one surface is coated with a layer of POLYTHENE.

The result of this combination is an effective MOISTURE VAPOUR BARRIER that combines the strength of SISALKRAFT with the virtues of POLYTHENE.

APPLICATIONS

Sarking under tiles and slates
Moisture barrier in timber frame construction
Under timber floors
Moisture and air stop in walls
Underlay to concrete
Separation layer between concrete
Curing concrete
Form lining
Protection from frost
Temporary tarpaulin

A PRODUCT OF BRITISH SISALKRAFT LTD

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SOLE DISTRIBUTORS

J. H. SANKEY & SON LTD *Established over a Century*

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Colvilles have built up a reputation as suppliers of all types of Structural Steel - Light and Heavy Sections, Joists and Plates - to all specifications. Colvilles can supply a range of High Strength Steels under our DUCOL series with a minimum yield strength of 23 tons per square inch and upwards.
These special steels are in regular production and can be supplied in accordance with our rolling programme.

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FITNESS FOR PURPOSE STEELS

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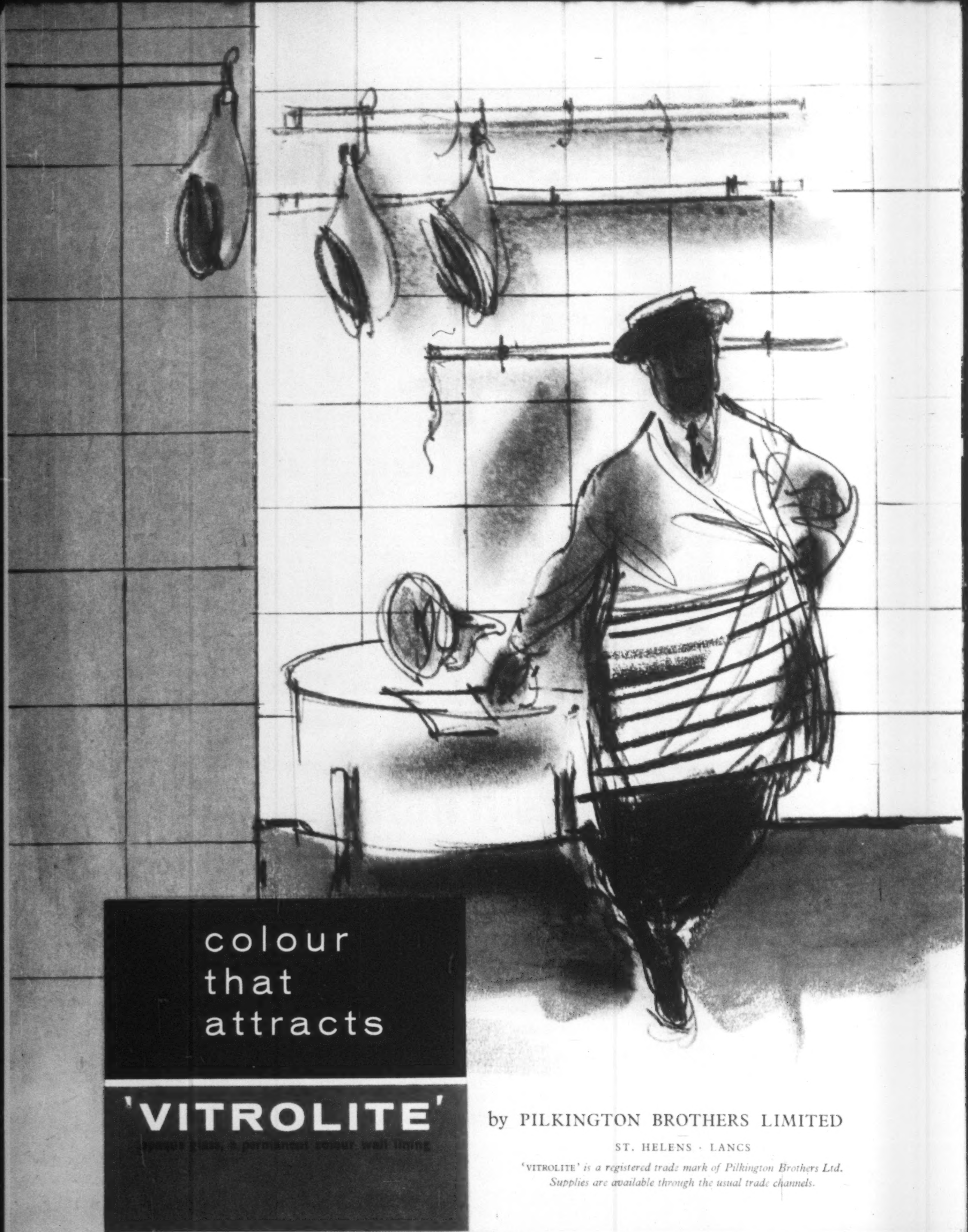

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opaque glass, a permanent colour wall lining

by PILKINGTON BROTHERS LIMITED

ST. HELENS · LANCS

'VITROLITE' is a registered trade mark of Pilkington Brothers Ltd.
Supplies are available through the usual trade channels.

INTERPRETATION

by

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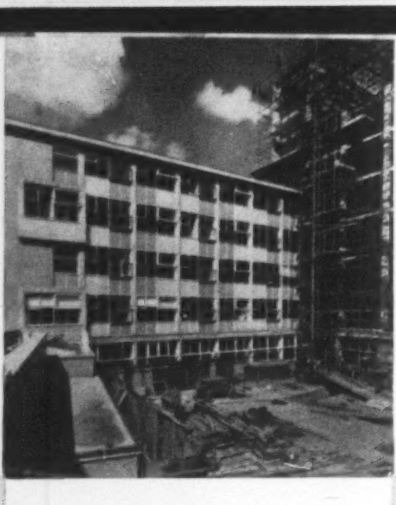
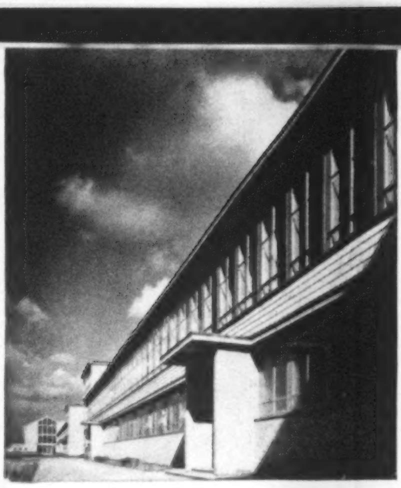
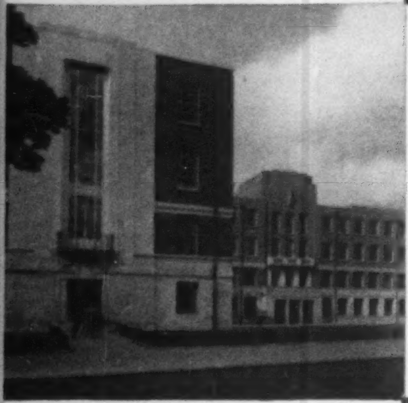
HORN LANE, LONDON W.3 'Phone: ACOrn 3444

ROYAL TECHNICAL COLLEGE
SALFORD
Architect:
G. Noel Hill

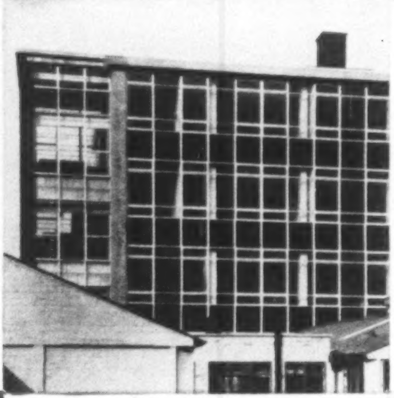


HATFIELD
SECONDARY TECHNICAL SCHOOL
Architects:
Easton & Robertson



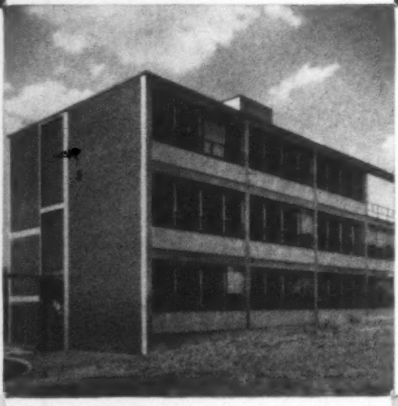


READING TECHNICAL COLLEGE
Architects:
Lanchester & Lodge

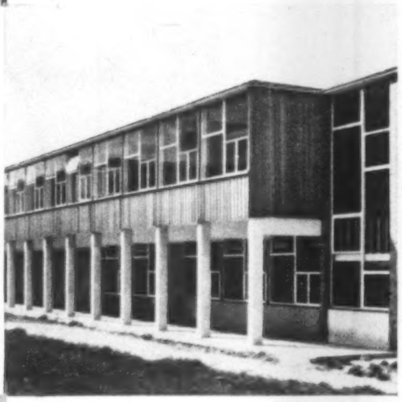


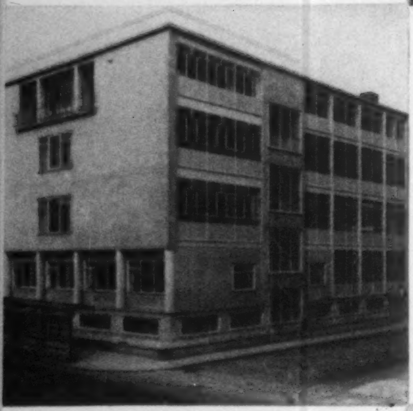
WORKINGTON COLLEGE
OF FURTHER EDUCATION
Architect:
John H. Haughan

POOLE COLLEGE
OF FURTHER EDUCATION
Architects:
Elder & de Pierro

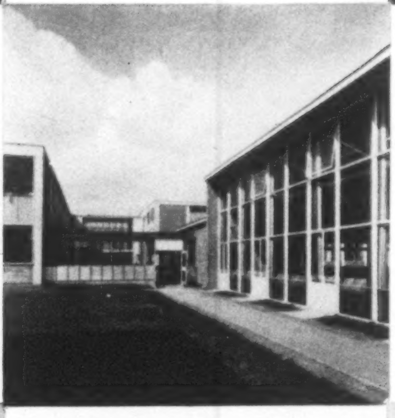


THURROCK TECHNICAL COLLEGE
Architect:
H. Conolly



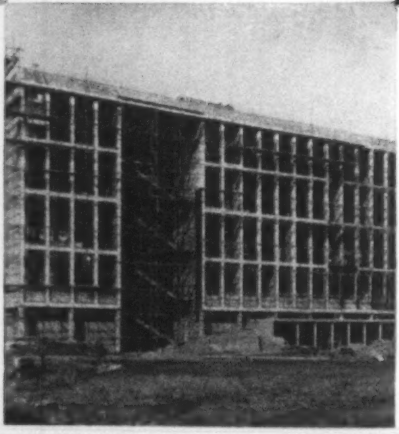


KEIGHLEY TECHNICAL COLLEGE
YORKS
Architect:
A. W. Glover

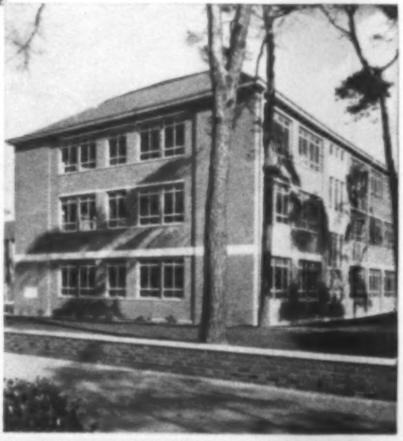


BASILDON
FRYERNS COUNTY SECONDARY
TECHNICAL SCHOOL
Architect:
Denis Clarke Hall

OXFORD
COLLEGE OF TECHNOLOGY,
ART & COMMERCE
Architect:
E. G. Chandler

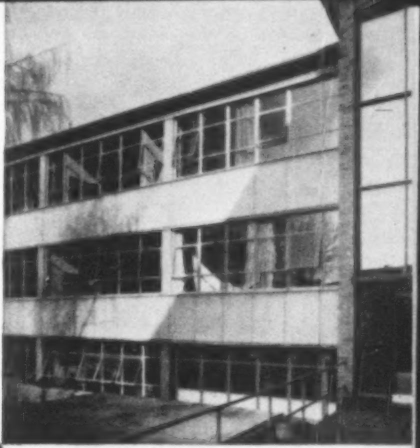


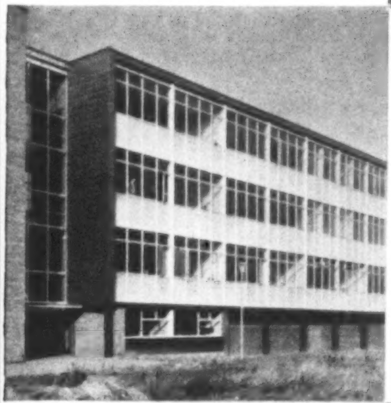
BOURNEMOUTH
MUNICIPAL COLLEGE
Architect:
John Burton



DUNCAN OF JORDANSTONE
COLLEGE OF ART
DUNDEE
Architect:
James Wallace

CAMBRIDGESHIRE
TECHNICAL COLLEGE
& SCHOOL OF ART
Architect:
Alister MacDonald

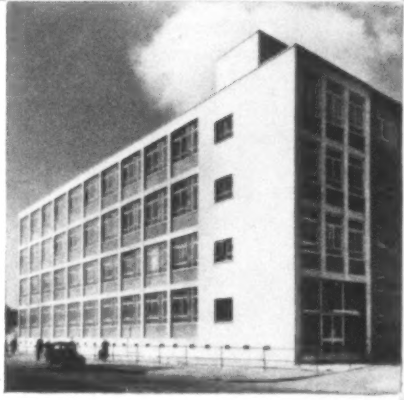




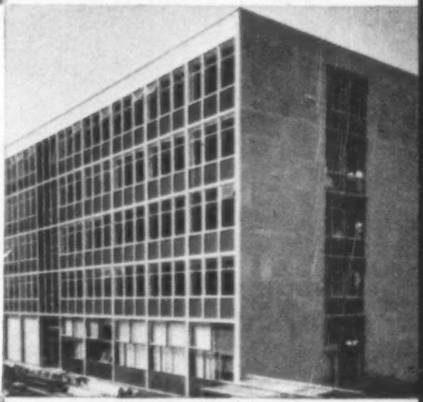
LONGLANDS COUNTY COLLEGE
MIDDLESBROUGH
Architect:
K. J. Caton

N. BEDS. COLLEGE
OF FURTHER EDUCATION
BEDFORD
Architect:
S. Vincent Goodman

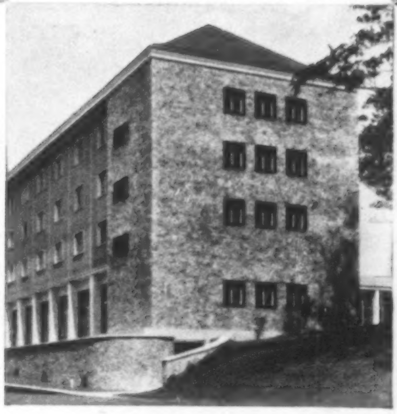
QUEEN MARY COLLEGE
MILE END ROAD
Architects:
Playne & Lacey



N.E. ESSEX
TECHNICAL COLLEGE
COLCHESTER
Architect:
H. Conolly



Modern
Technical Colleges
build with...



R.N. ENGINEERING COLLEGE
PLYMOUTH
Architects Department, M.O.W.

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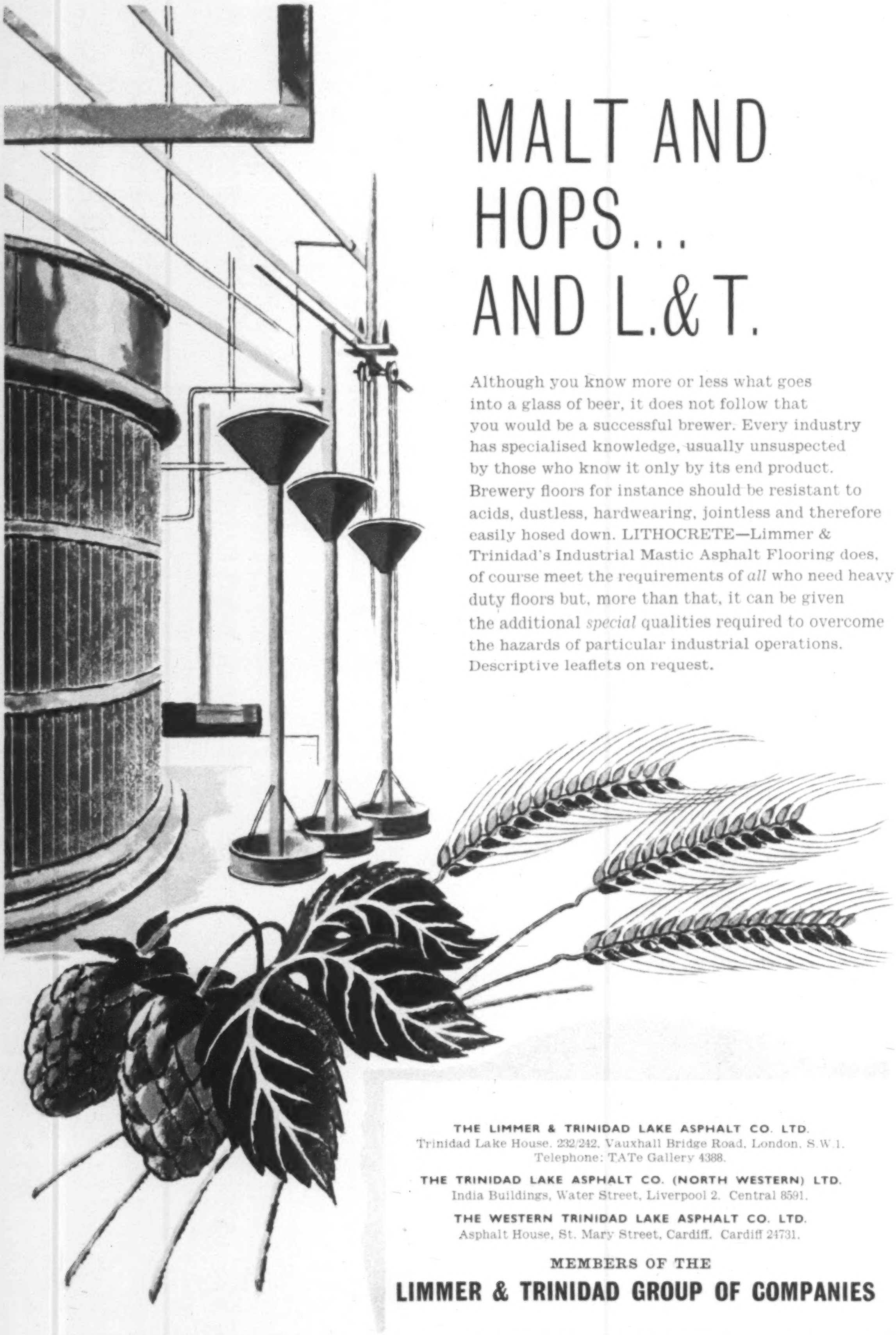

MALT AND HOPS... AND L.&T.

Although you know more or less what goes into a glass of beer, it does not follow that you would be a successful brewer. Every industry has specialised knowledge, usually unsuspected by those who know it only by its end product. Brewery floors for instance should be resistant to acids, dustless, hardwearing, jointless and therefore easily hosed down. LITHOCRETE—Limmer & Trinidad's Industrial Mastic Asphalt Flooring does, of course meet the requirements of *all* who need heavy duty floors but, more than that, it can be given the additional *special* qualities required to overcome the hazards of particular industrial operations. Descriptive leaflets on request.

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Trinidad Lake House, 232/242, Vauxhall Bridge Road, London, S.W.1.
Telephone: TATe Gallery 4388.

THE TRINIDAD LAKE ASPHALT CO. (NORTH WESTERN) LTD.
India Buildings, Water Street, Liverpool 2. Central 8591.

THE WESTERN TRINIDAD LAKE ASPHALT CO. LTD.
Asphalt House, St. Mary Street, Cardiff. Cardiff 24731.

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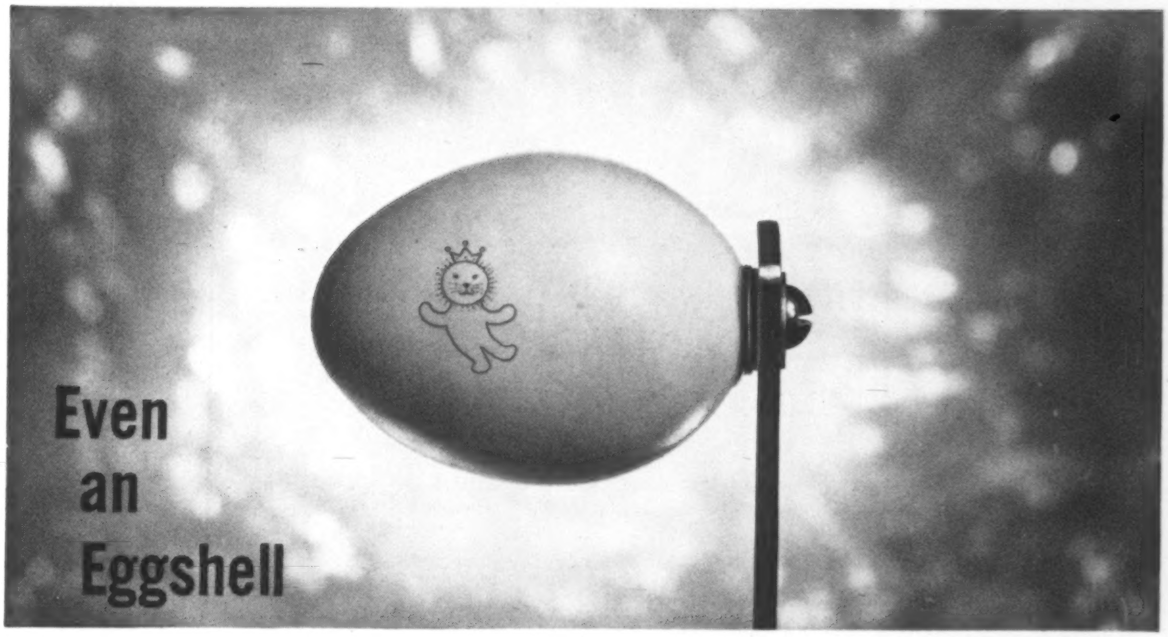
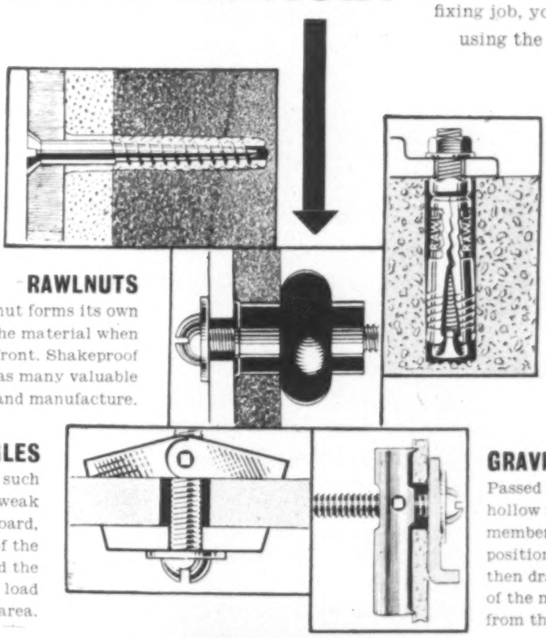


**can
be
Screw-fixed with a RAWLPLUG
FIXING DEVICE!**

If you live to a hundred, you are unlikely to want to do much screw-fixing of eggshells! Yet this feat—possible only with a Rawlplug Fixing Device (a Rawlnut)—does serve to highlight the astonishing effectiveness of these Devices in making 'difficult' and even 'impossible' fixings simple and straightforward. Whatever the screw or bolt fixing job, you'll save time, money and temper by using the appropriate Rawlplug Fixing Device.



RAWLPLUGS
The famous Rawlplug makes firm screw fixings in masonry in a mere fraction of the time taken by any other method. For all screw sizes up to ¼" diam. coach screws.

RAWLBOLTS
For light or heavy bolting jobs. A dry fixing of enormous strength—no cold chiselling, no waiting for cement to harden. In all bolt diameters up to 1".

RAWLNUTS
The amazing Rawlnut forms its own 'rivet head' behind the material when screwed up from the front. Shakeproof and waterproof, it has many valuable uses in both building and manufacture.

SPRING TOGGLES
For making firm fixings to such thin and structurally weak materials as plasterboard, ceilings, etc. The wings of the device spring apart behind the material and spread the load over a wide area.

GRAVITY TOGGLES
Passed through a hole in hollow material, the long member falls into a vertical position by gravity, and is then drawn against the back of the material by screwing from the front.

**IMPOSSIBLE FIXINGS
ARE EASY WITH** RAWLPLUG **FIXING DEVICES** *For Speed and Strength!*

The World's largest manufacturers of fixing devices
THE RAWLPLUG COMPANY LTD., CROMWELL RD., LONDON S.W.7

B669

Britain's Timber for Britain's Industry

A new pattern of national distribution for Home Grown Timber

The Home Grown Timber Marketing Corporation Ltd., formed in May, 1959, is the first and only organisation for providing British industry with bulk supplies of British timber.

The activities of the Corporation comprise :-

Central Marketing

The Corporation co-ordinates supplies from its members, who are drawn from the many individual merchants comprising the Federated Home Timber Merchants' Association and the Home Grown Timber Merchants' Association of Scotland. By central marketing, the Corporation gives the industrial consumer controlled bulk delivery from as many as three hundred sawmills.

Research and Information

There is an extensive programme of utilisation research for home grown timber. The results of this research, together with other information, are available free and continuously through the Corporation's Information Bureau

Corporation Control Mark

The Control Mark of the Corporation is awarded only to timber that meets the standards required by its inspectorate. It is a guarantee to the industrial consumer that he is getting home grown timber of the correct quality and type, properly processed to his requirements delivered in the right quantity, at the right time and at a stable, economic price.

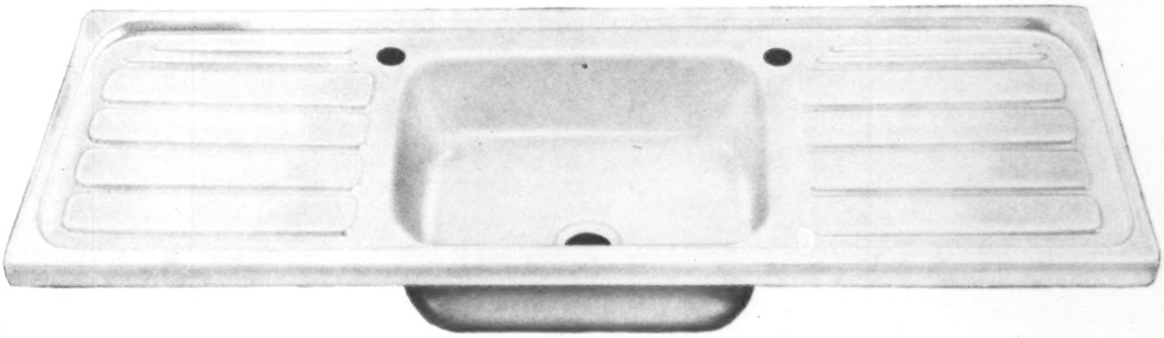
Home Grown Timber Marketing Corporation Ltd

40 BAKER STREET LONDON W.1. Telephone Hunter 2229

Curran

INTRODUCE THEIR NEW 54 x 18 VITREOUS ENAMEL ON STEEL

DOUBLE DRAINER



For pillar taps. Combining sink and double draining boards with splash back. The boards are panel-fluted and have pressed-in fall for correct draining. Made only without overflow. Length 54 in. Width 18 in. Bowl 18½ in x 14 in x 7 in deep.

The new Curran Double Drainer, like all other Curran Sinks, is made from heavy gauge, top grade British steel, onto which is fused a permanent coating of tough vitreous enamel. The Curran Double Drainer is designed to give the greatest bowl capacity, has correctly sloped draining boards, is easy to install and maintain. All materials used in its manufacture conform to British Standards.

Also available: the 36 x 18 and 42 x 18 reversibles; and the 42 x 18 and 42 x 21 with tap holes—in choice of blue, green, cream or white.
Get in touch with your supplier now: or contact us for full details.

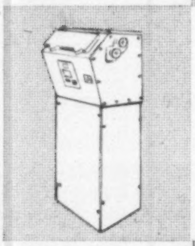
EDWARD CURRAN ENGINEERING LTD, SINKS AND BATHS DIVISION, CARDIFF. TELEPHONE: CARDIFF 33644

MANUFACTURED TO COMPLY
WITH THE REQUIREMENTS
OF B.S.2692
HIGH-VOLTAGE
CARTRIDGE
FUSE-LINK
TYPE
J

Reyrolle

Ranges

10 to 60 amperes at 6·6/11 kV
15 to 100 amperes at 3·3 kV
The fuse-links are fully A.S.T.A. certified in accordance with the requirements of B.S. 2692.



Purpose

Suitable for use in H.V. fuse-switches requiring a 10″ × 2½″ oil-immersed cartridge fuse-link fitted with striker-pin tripping-device.

Manufacture

Every stage of manufacture is subject to careful quality control to ensure, amongst other things, complete oil-tightness. All fuse-links are checked by X-ray examination during and after assembly.

Type Test Data

RATING		BREAKING-CAPACITY	A.S.T.A. CERTIFICATE NO:
CURRENT (amps)	VOLTAGE (kV)		
60	6·6/11	250 mVA at 11 kV	3866
60	6·6/11	250 mVA at 6·6 kV	3976
60	6·6/11	150 mVA at 6·6 kV	3977
60	3·3	75 mVA at 3·3 kV	4013
100	3·3	75 mVA at 3·3 kV	4061

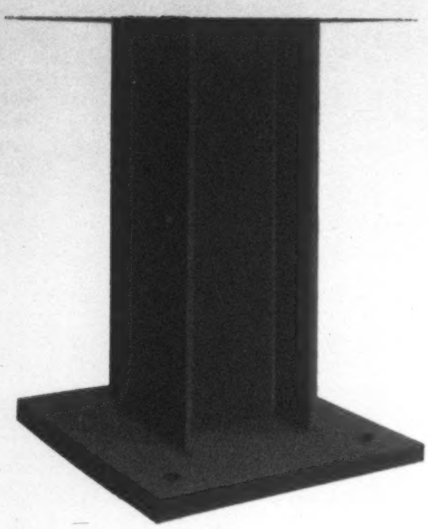
A. Reyrolle & Company Limited - Hebburn - County Durham - England

Shanks

VIKING

Design Registration
No. 875312

SHANKS & CO., LTD., TUBAL WORKS, BARRHEAD, SCOTLAND



...no rivets?

There aren't so many rivets in to-day's steelwork,
because Britain's steel industry is now rolling
new beams and columns, so proportioned as
to carry the load without needing riveted-on plates.
Welding also reduces the amount of riveting, and
results in a neat, compact construction.

CHEAPER

These advances mean that the finished structure is cheaper, because steel and labour are saved.

STRONGER A higher safe working stress is now recognized, again reducing the amount of steel needed for a given job.

FURTHER SAVINGS Fire-proof encasement, hitherto calculated as a burden on the steelwork, is now accepted as contributing to its strength: so that columns can be slimmer, saving steel and labour.

STEEL
STRENGTH
SECURITY

B·C·S·A

A STEEL-FRAMED BUILDING IS ALWAYS A SOUND
INVESTMENT BECAUSE ITS SECURITY IS UNQUESTIONABLE
AND IT IS SO EASILY ALTERED OR ADAPTED

BRITISH CONSTRUCTIONAL STEELWORK ASSOCIATION, WESTMINSTER, S.W.1

it's Gay's
again with a
new EGGSHELL
finish

GAY'S
GAYMEL
eggshell finish
1 IMP. PINT
CHINESE BLUE

GAYMEL EGGSHELL ENAMEL

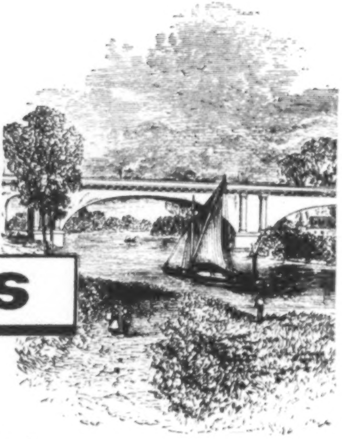
First came Gaymel Enamel, then the new Gaymel Flat Enamel and now GAY's introduce a further addition to their superb range of finishes – GAYMEL EGGSHELL ENAMEL.

This is an exceptionally high quality enamel for interior use. It gives a true 'eggshell' sheen with a toughness and durability that withstands frequent washing. Gaymel Eggshell Enamel has a semi-paste consistency and can be applied coat on coat – without a separate undercoat – by brush, roller or spray. It is available from stock in 36 intermixable colours selected from Gay's Architect's Range. For really top class results, with less time and labour, specify GAYMEL EGGSHELL ENAMEL, another sound paint by Gay's.

Write for full information and shade cards to:—
R. GAY & CO. *93/97 New Cavendish Street, London, W1*

Isambard

would have been keen on



KEE KLAMPS

Isambard Brunel's bridge over the Thames at Taplow—the widest brick arches ever constructed—was doomed, so the cynics prophesied, to early collapse, but one hundred and twenty years later it remains a monument, and a hard-working one at that, to the ingenuity and understanding he brought to his material.

Kee Klamps for tubular construction, the product of inventive minds at Reading, provide just those possibilities of construction that would have delighted the great Chief Engineer of the Great Western Railway.

Kee Klamp Engineers, qualified to advise, are freely available to discuss applications of this system.

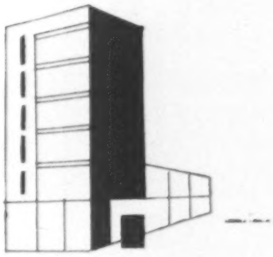
GEO. H. GASCOIGNE CO. LTD.
579 GASCOIGNE HOUSE, READING, BERKS.
Telephone READING 54417 (3 lines)

The Imdugud Relief, outstanding among discoveries made at Al-'Ubaid, of art works incorporating copper and bitumen . . . and dated c.3100 B.C. Reproduced by courtesy of the British Museum.

What will last . . . 5,000 years?

Copper and native bitumen are known to have been in use as long ago as 3100 B.C. *because* the weatherproof and corrosion-resistant properties of these materials have helped to preserve for 20th Century eyes relics of unbelievably ancient civilisations.

TODAY this same time-tested combination of Copper and native bitumen now derived from the great Trinidad Asphalt 'lake' provides modern building with COPPERTRINDA — the finest hand-made dampcourse in the world.



COPPERTRINDA

for lasting protection

A sample of COPPERTRINDA will be sent to you immediately upon request to

ENGERT & ROLFE LIMITED
Dept AR.3. Barchester Street London E14
Tel. EAST 1441

Will Engert & Rolfe arrange to have a sample of COPPERTRINDA sent to

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AR.3

CT.1

The new **REDFYRE CENTRAMATIC** makes oil-fired central heating the natural choice for three or four bedroomed houses

Oil-fired central heating is to be found perfected today in the new Redfyre Centramatic. All the problems of convenience and economy have been solved in the most sensible way to provide trouble-free service that has never been possible until *now*. Read on and you will see . . .

"Kitchen Equipment" Design

The new Redfyre Centramatic is the only oil-fired boiler which matches up to the accepted measurements for basic kitchen equipment. It is fully insulated, finished in a wipe-clean three-tone enamel and is available in an attractive variety of popular kitchen colours.

Complete Thermostatic Control

The householder selects the temperature he needs on the temperature scale. Then the Redfyre Centramatic regulates the burning to keep the water automatically at the selected temperature.

Automatic Combustion

The Centramatic does not rely on chimney draught for efficient combustion, although it needs a chimney flue into which to exhaust. It provides its own draught, and regulates how much it needs. This saves a lot of fuss and bother.

Electric Ignition

Ordinary oil-fired boilers, when they are idling, cut down on the general rate of burning or rely on a simple pilot-light. Either way you get imperfect, uneconomical and "sooty" combustion. The Redfyre Centramatic has the perfect solution: when the thermostat control indicates "no heat required", the flames go out altogether and no oil or electricity is used. When heat is needed again, the oil is relit automatically and the unit is operating at maximum output within seconds.

Easy to Install and Service

The Redfyre Centramatic comes as a packaged unit. It requires no specialised installation technique. The local supplier can service it yearly, and that's all the attention it should need.

Further Facts

The Redfyre Centramatic can produce up to 50,000 B.T.U.s per hour—enough for radiators, plus heated towel rails, plus ample hot water for the kitchen, plus hot baths. In other words it is ideal for the three or four bedroomed house. A point to remember is that because the Centramatic has the benefit of electric ignition, it is still efficient and economical when worked at less than its full capacity.

Two Sizes Available

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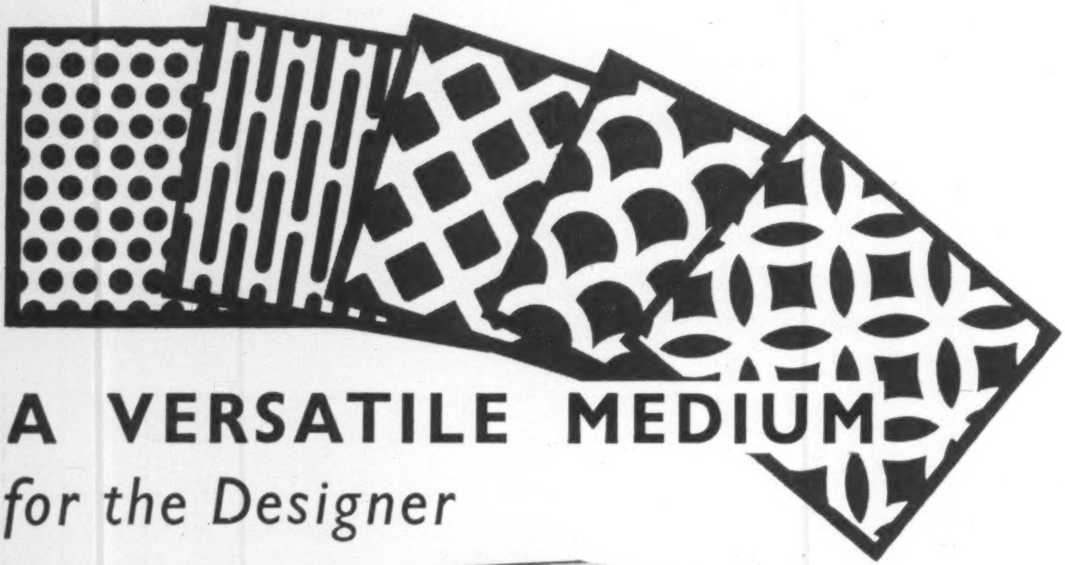

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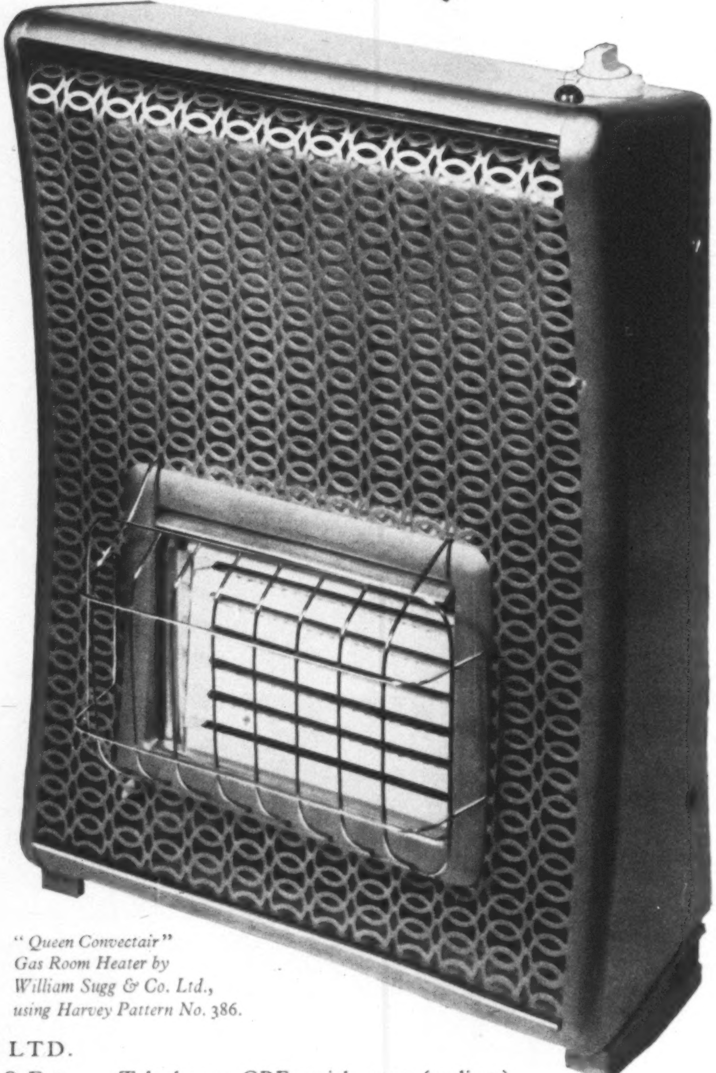

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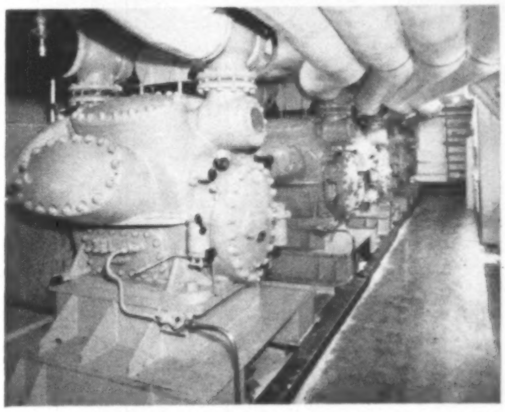

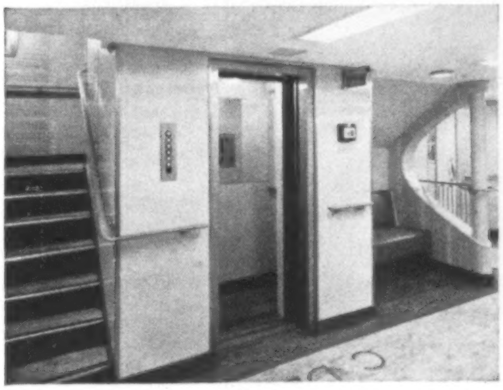

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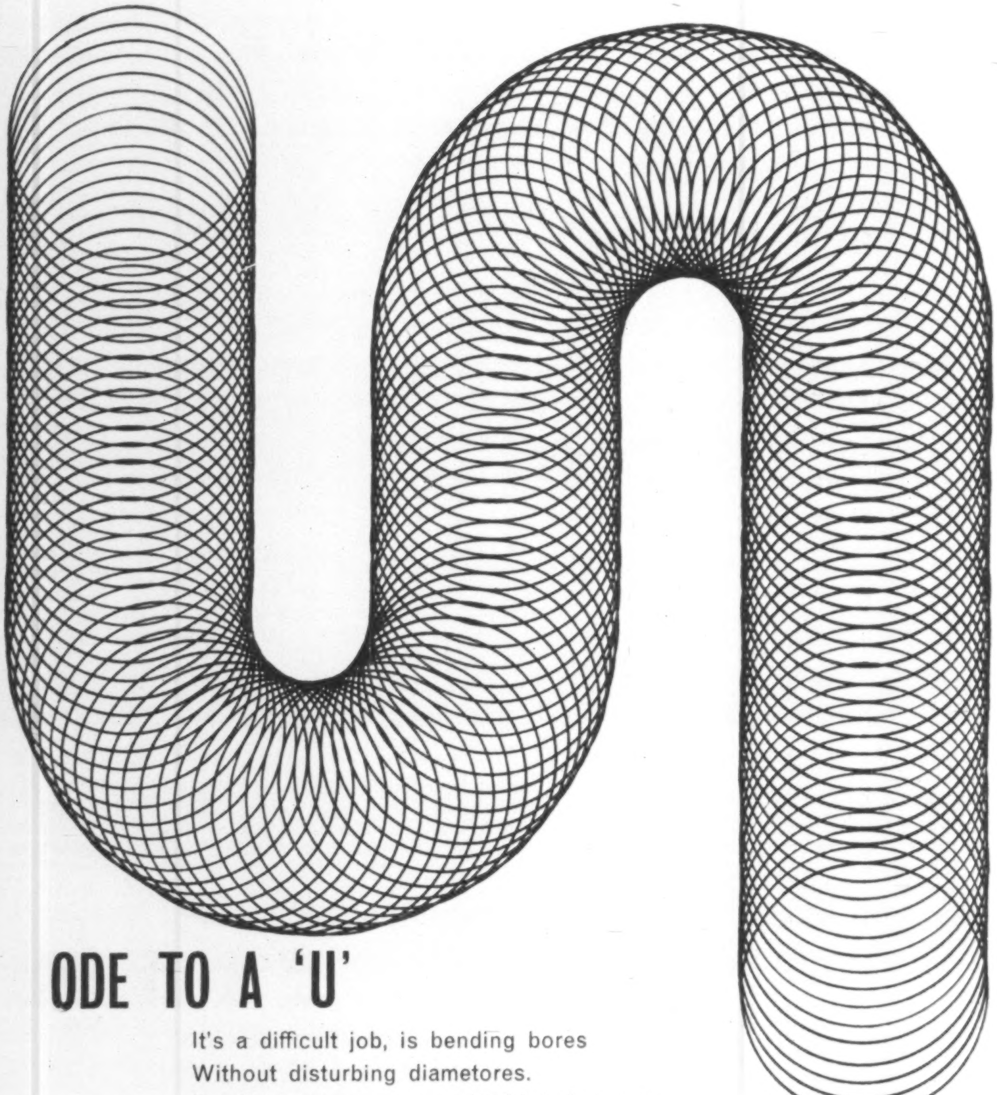

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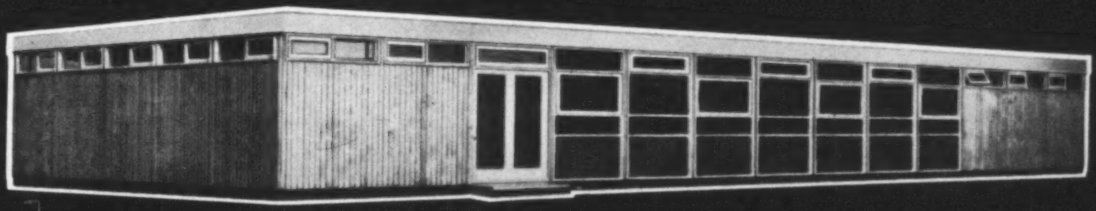

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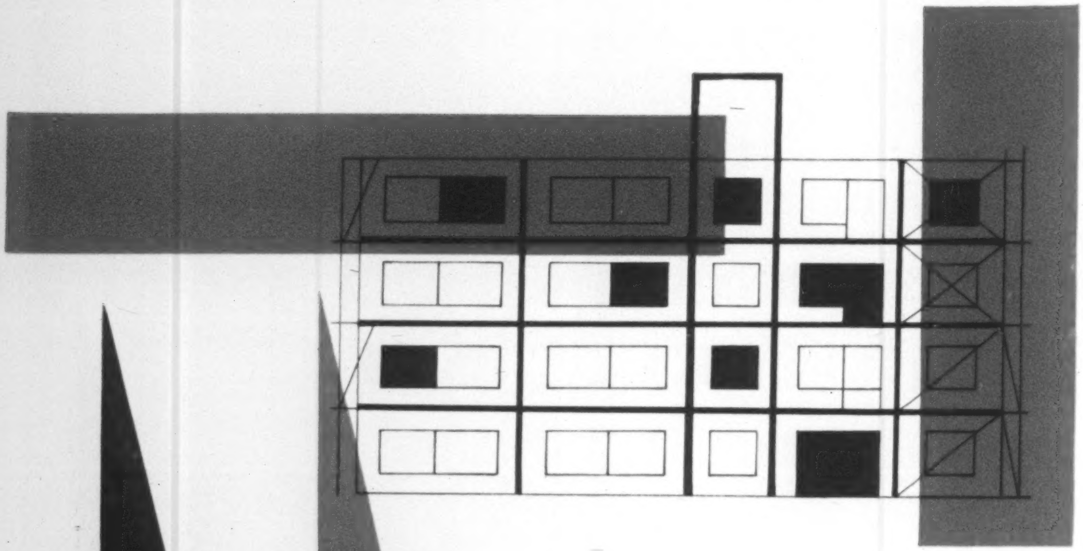

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g 1 in. Tee Bar
h 1½ in. Angle
i $1\frac{1}{16}$ in. 'H' Section
j 1 in. × $1\frac{5}{32}$ in. Special 'Z' Edging

7 Typical sections of plastic extruded diffusers, as supplied to lighting fitting manufacturers.

8 Moulded plastic shade and louvre as produced to the design of Messrs. Hume Atkins & Co., Ltd. (Registered Design No. 880153).

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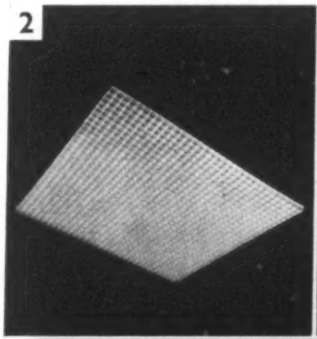

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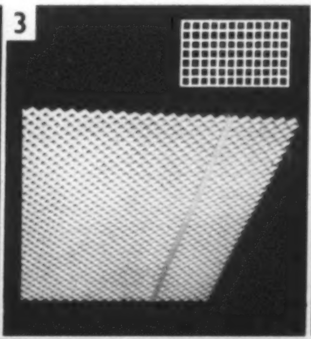

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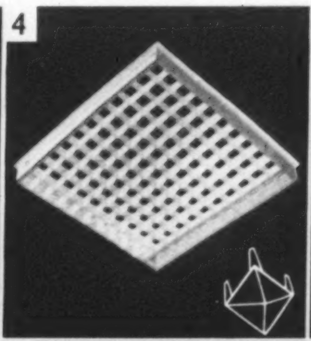

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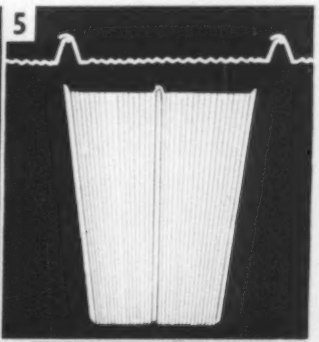

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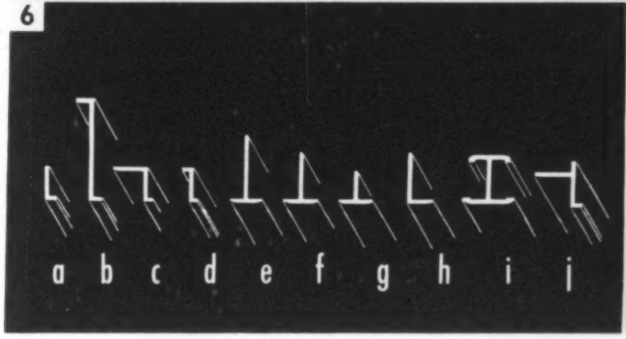

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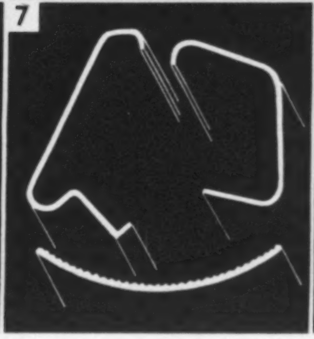

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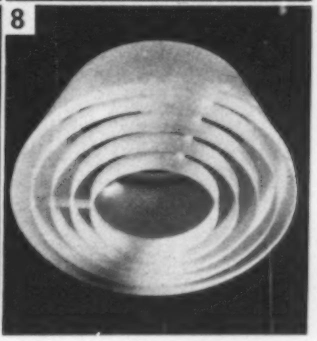

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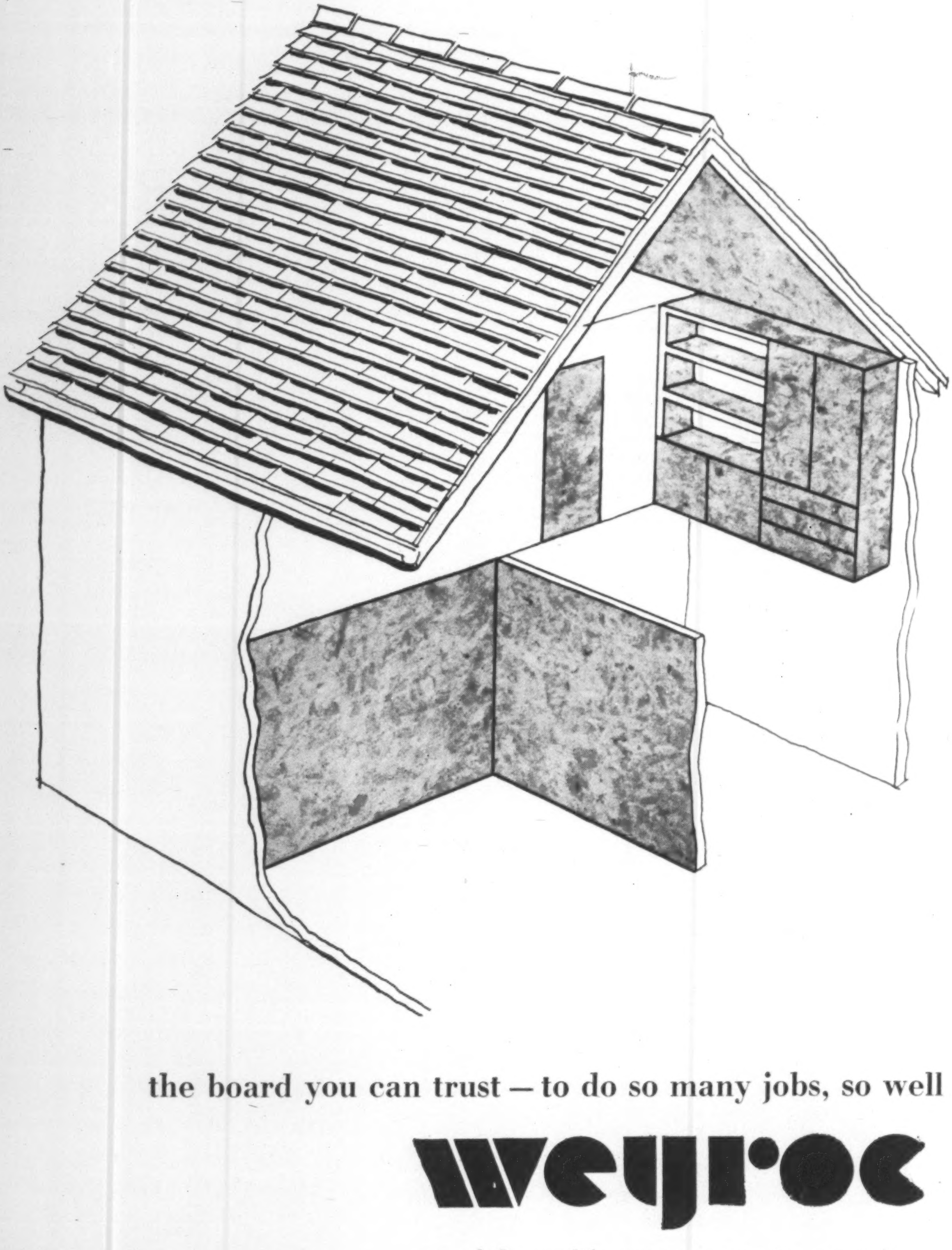

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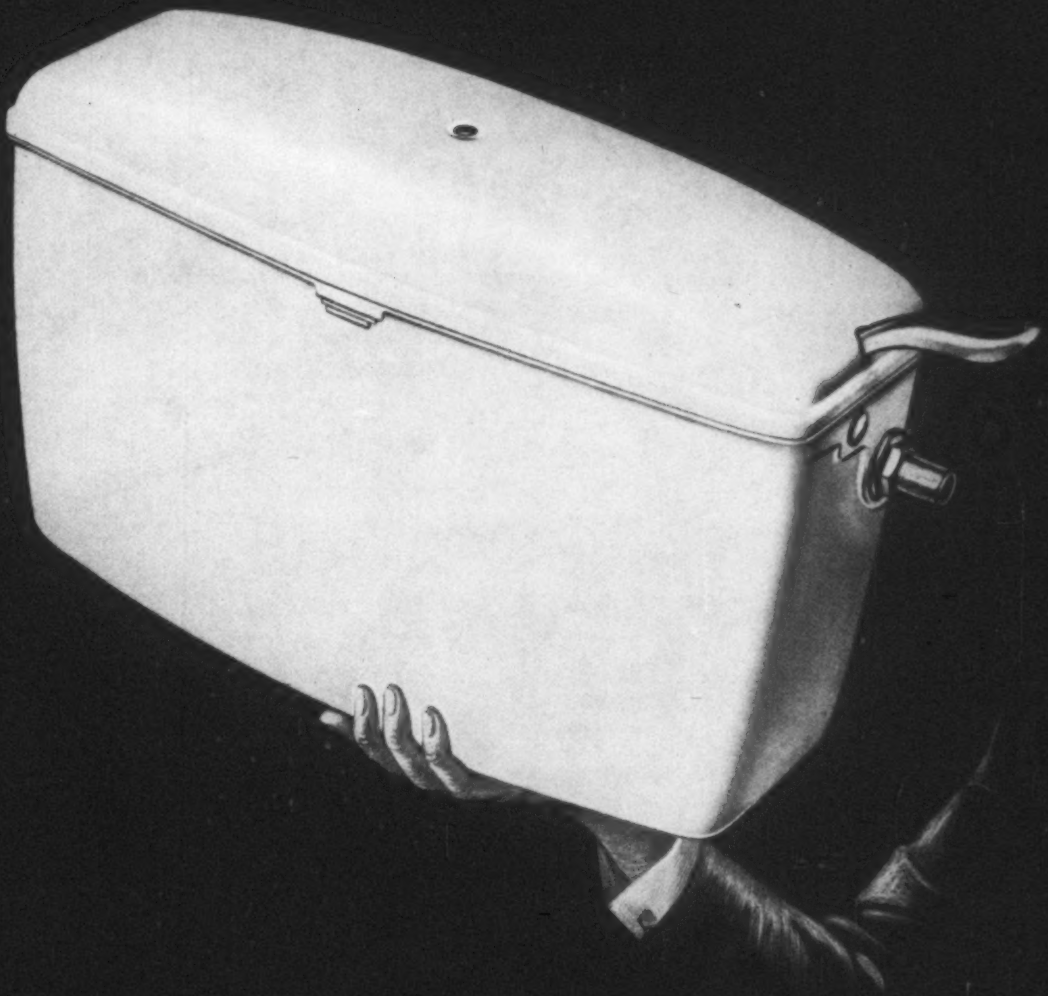

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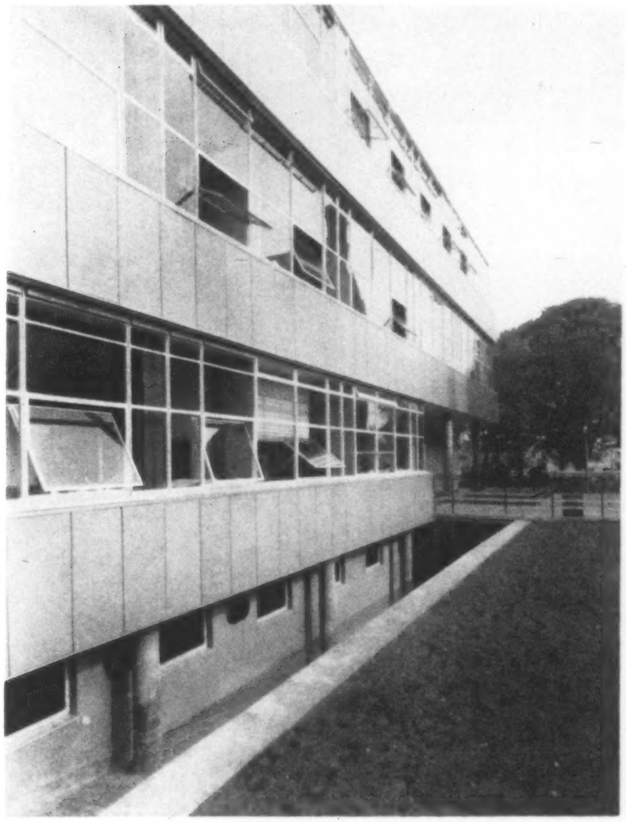

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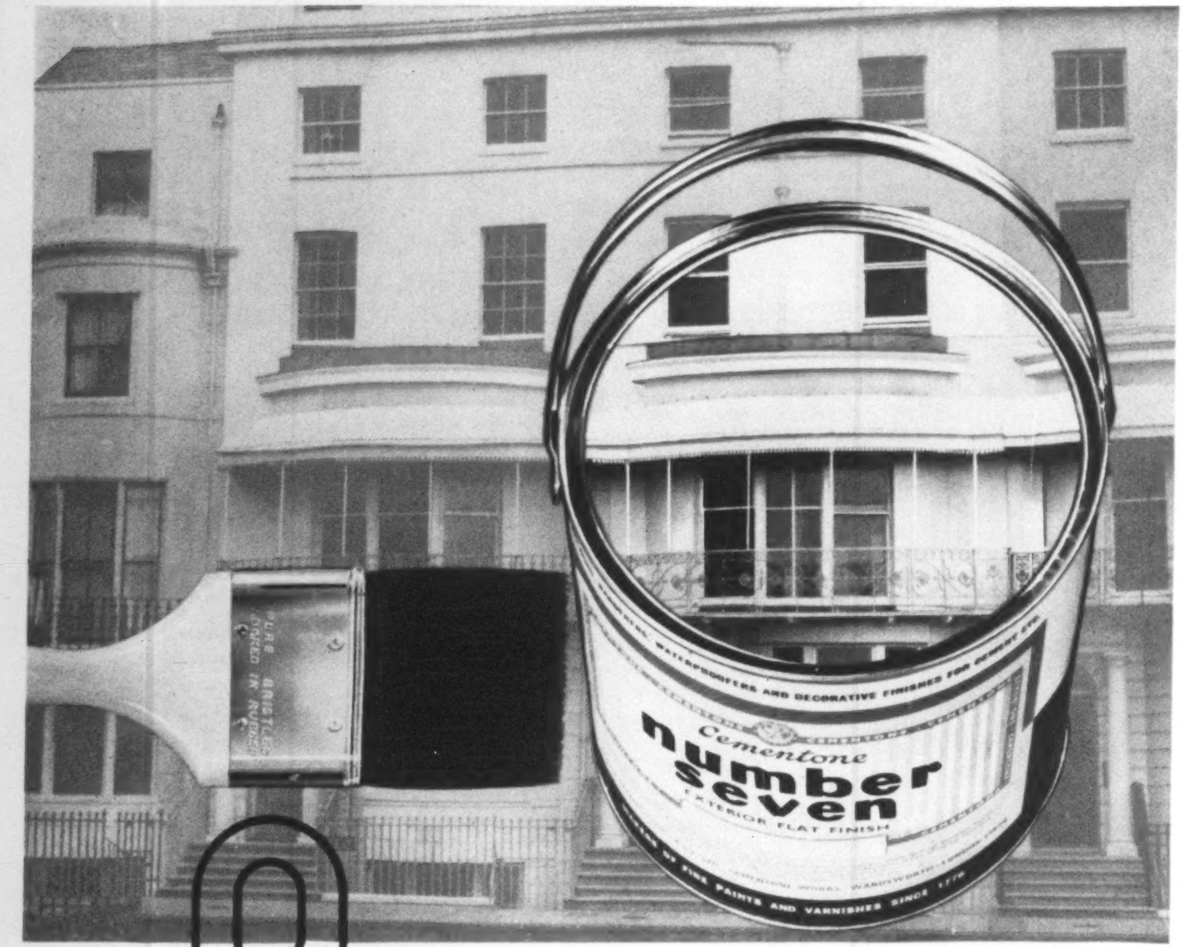
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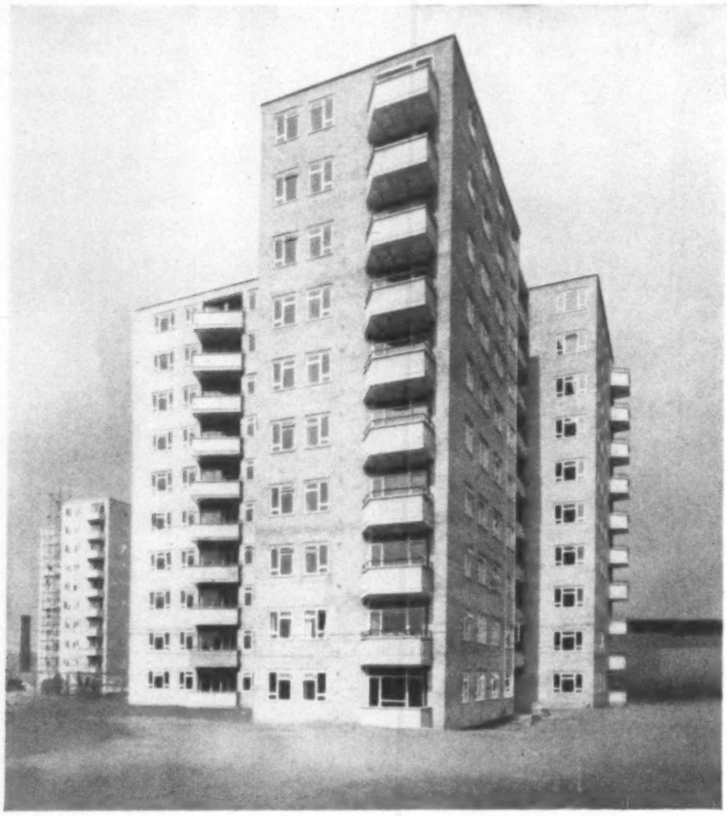

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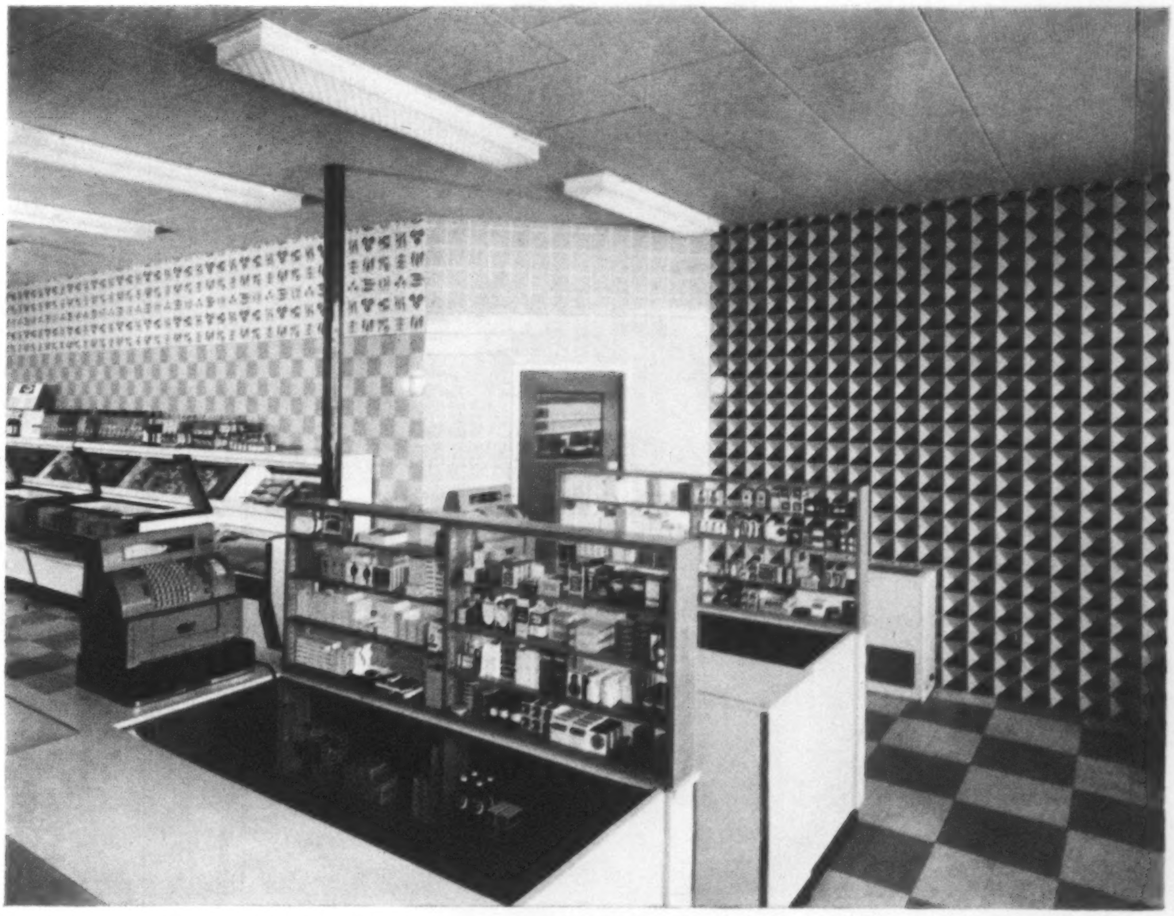

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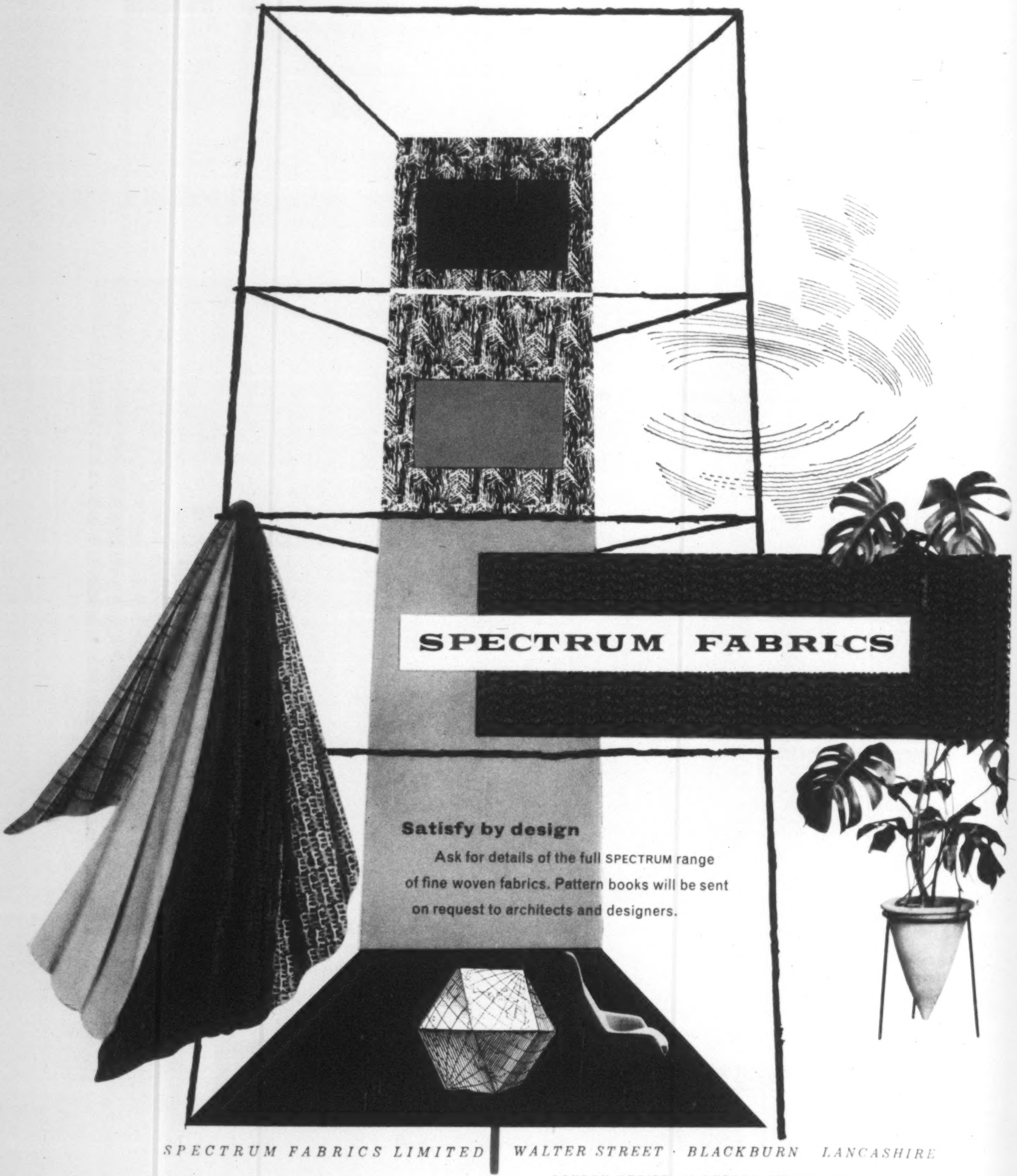

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TGA 51/1

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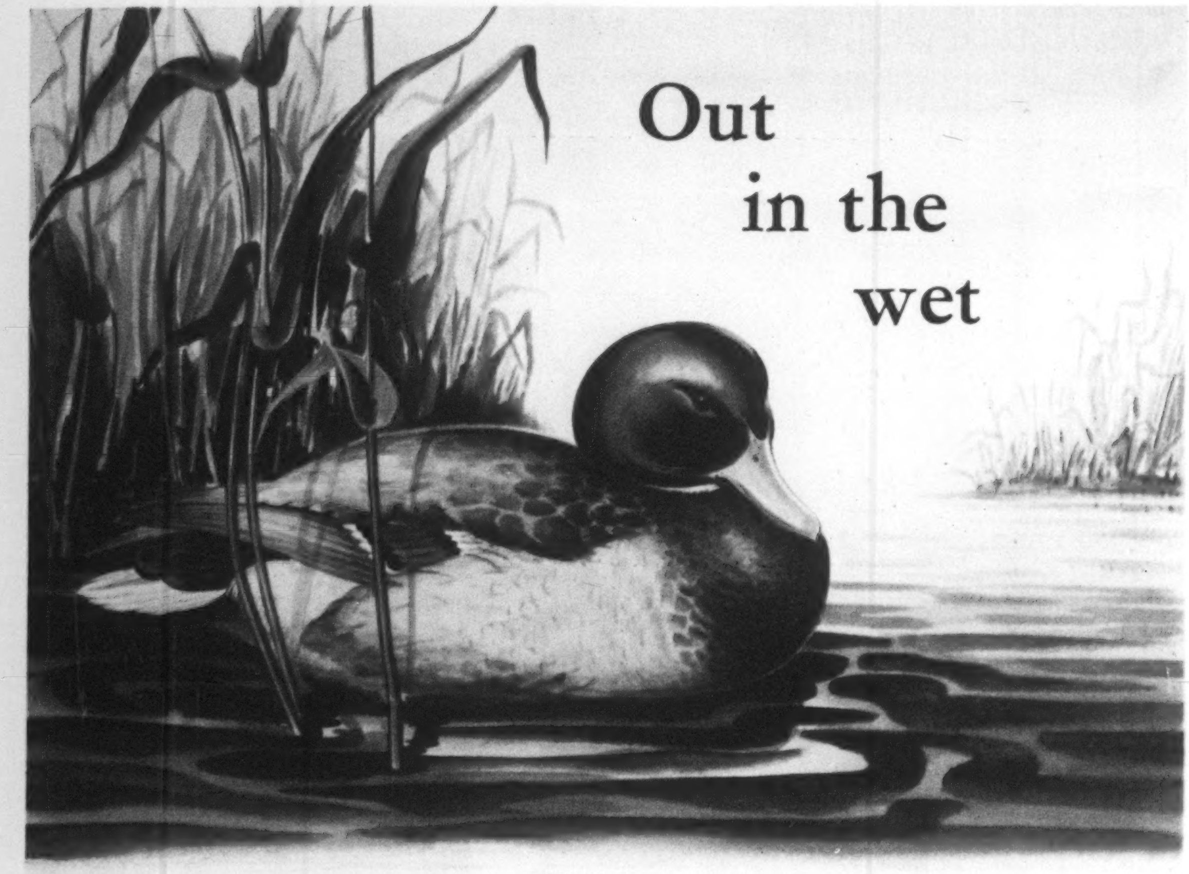

. . . but bone dry and wonderfully decorative

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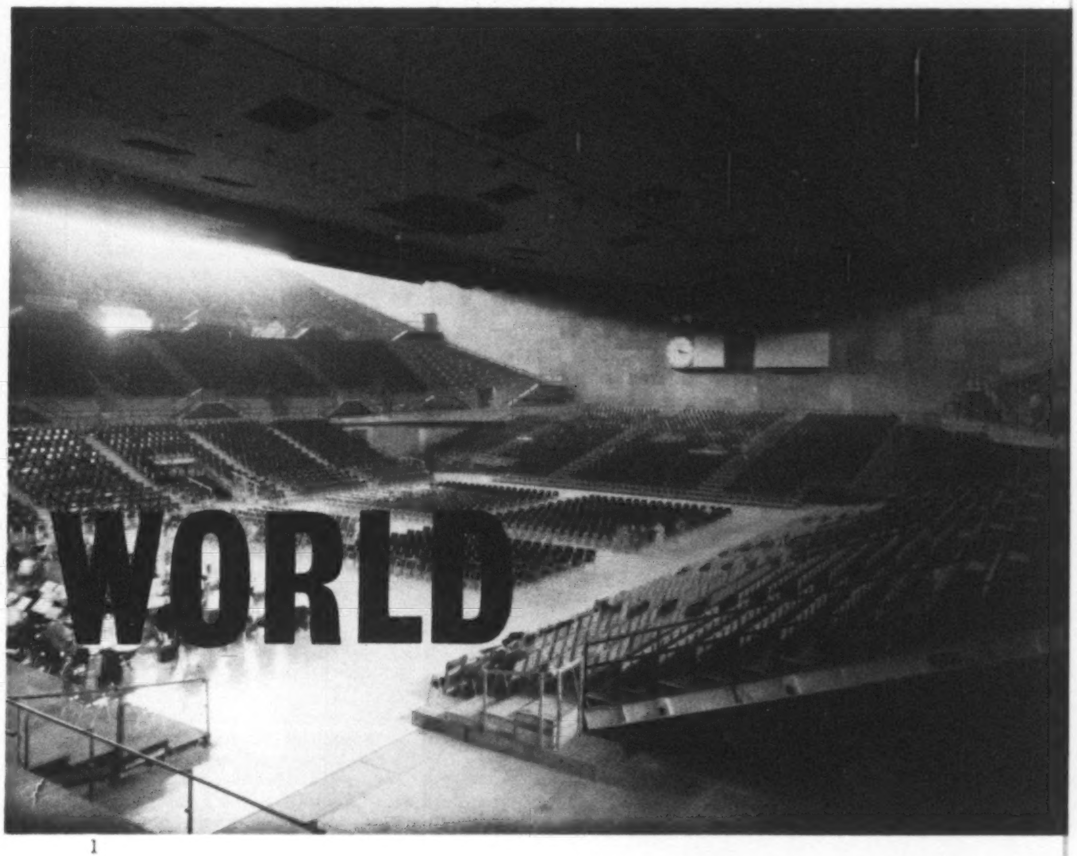


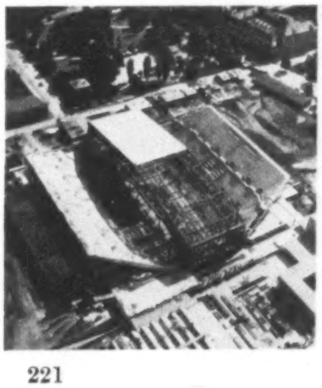
1

WIENER STADTHALLE

Auditorium/Sports Hall by Roland Rainer

The wide-swinging interior above, 1, shows the Vienna Stadthalle with seating disposed for an audience of maximum capacity. It represents the end-product of one of the most interesting but least-noticed competitions that has been held in Europe since before the war. The earlier history of the competition will be found set out in AR, June, 1958, and—as there stated—the executed design is that of Roland Rainer, in spite of the fact that Alvar Aalto split the first prize with him.

The executed version shows a number of variations from the prize-project, notably in the section. Thus, while the basic concept is still that of two giant ramps of seating flanking the *spielplatz*, with the roof carried between the tops of the ramps and the central services gantry—2 shows the structure before the side roofs were in



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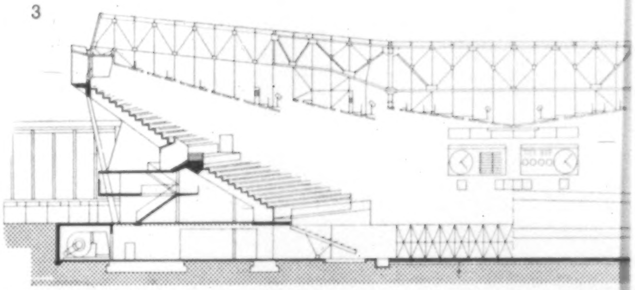

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APRIL 1960

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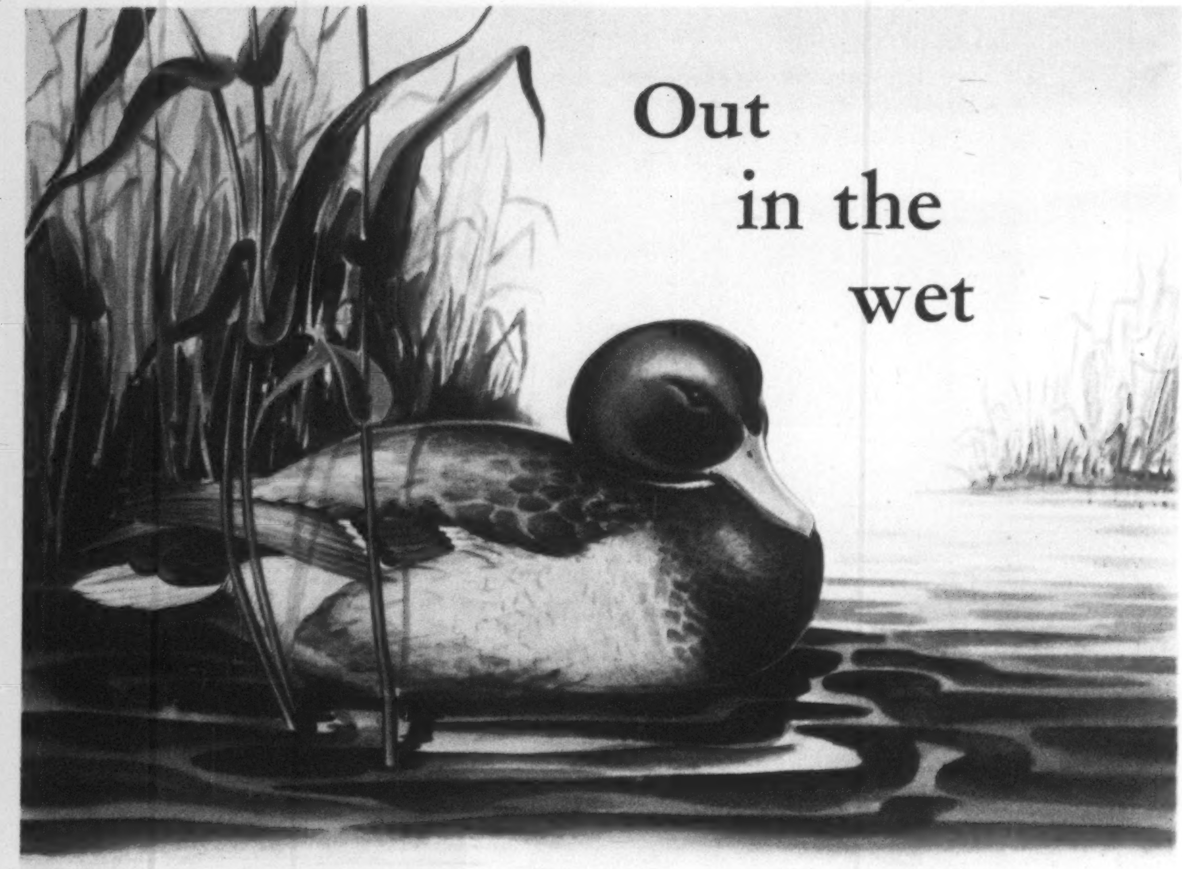

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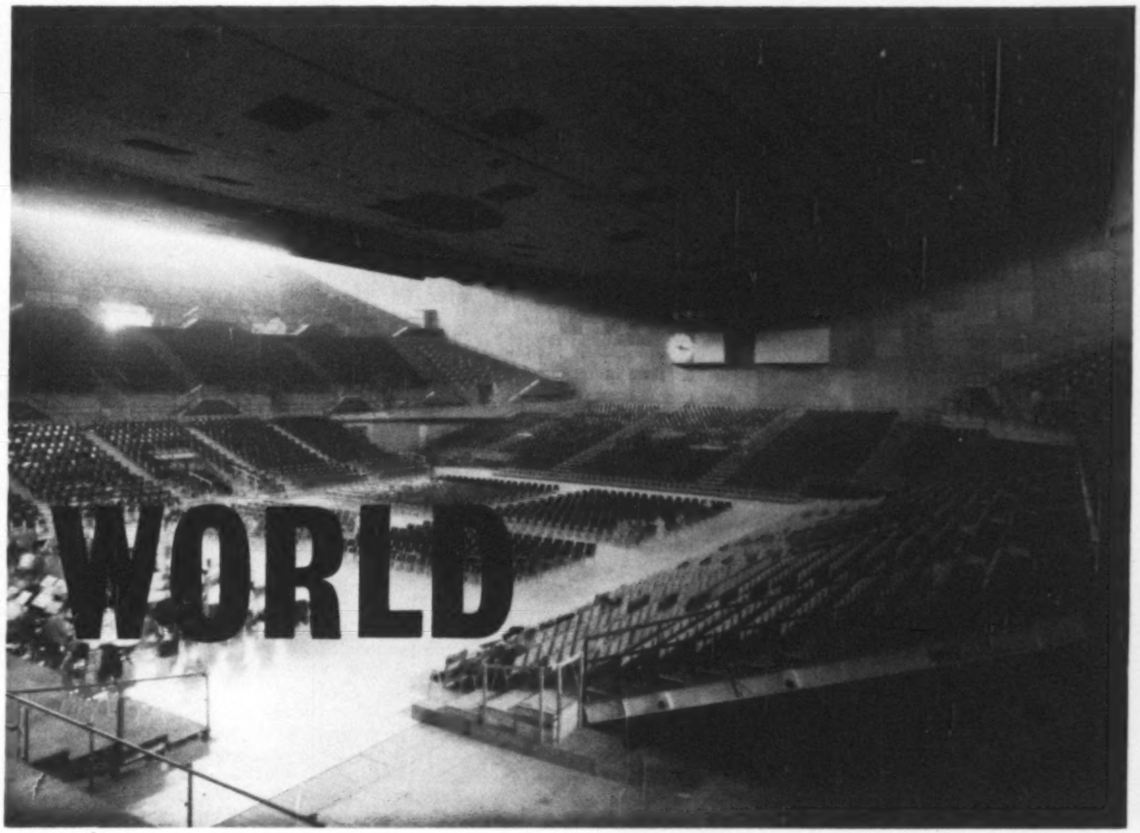


1

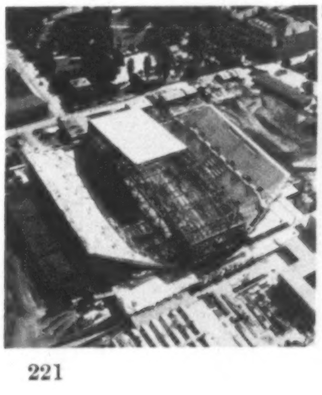
WIENER STADTHALLE

Auditorium/Sports Hall by Roland Rainer

The wide-swinging interior above, 1, shows the Vienna Stadthalle with seating disposed for an audience of maximum capacity. It represents the end-product of one of the most interesting but least-noticed competitions that has been held in Europe since before the war. The earlier history of the competition will be found set out in AR, June, 1958, and —as there stated—the executed design is that of Roland Rainer, in spite of the fact that Alvar Aalto split the first prize with him.

The executed version shows a number of variations from the prize-project, notably in the section. Thus, while the basic concept is still that of two giant ramps of seating flanking the *spielplatz*, with the roof carried between the tops of the ramps and the central services gantry—2 shows the structure before the side roofs were in place, and the gantry half roofed—the form of the truss-work in the roof, and of the visible ceiling has been considerably modified, giving the section seen in 3. This cross-section also gives some idea of the variety of ways in which the lower part of the hall can be modified for different purposes. The structure of the ramps does not come right down to ground level, and the lower tiers of seating, visible in 1, as well as left of centre in 3, are on trolleys and can be wheeled away. A false floor can then be built up at the level of the bottom of the ramps, or a banked cycle track can be inserted, as in 4, or right of centre in 3.

Externally, the basic section of the hall is frankly expressed, 5, but the general treatment does not—as so often happens with such buildings—leave the noble simplicity of the main structure islanded in a visual slum of car-parks and hot dog stands. The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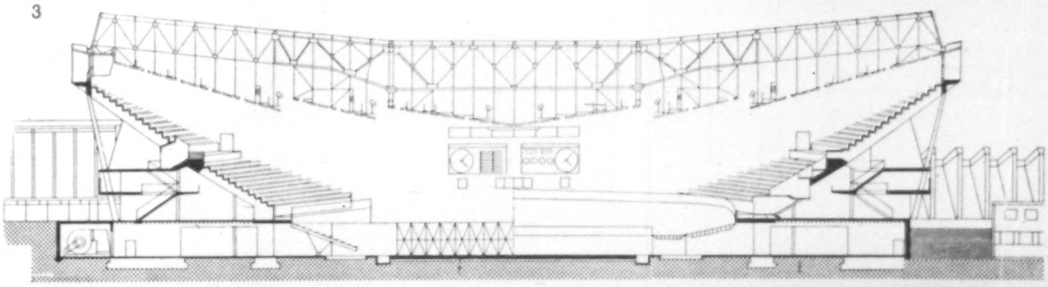

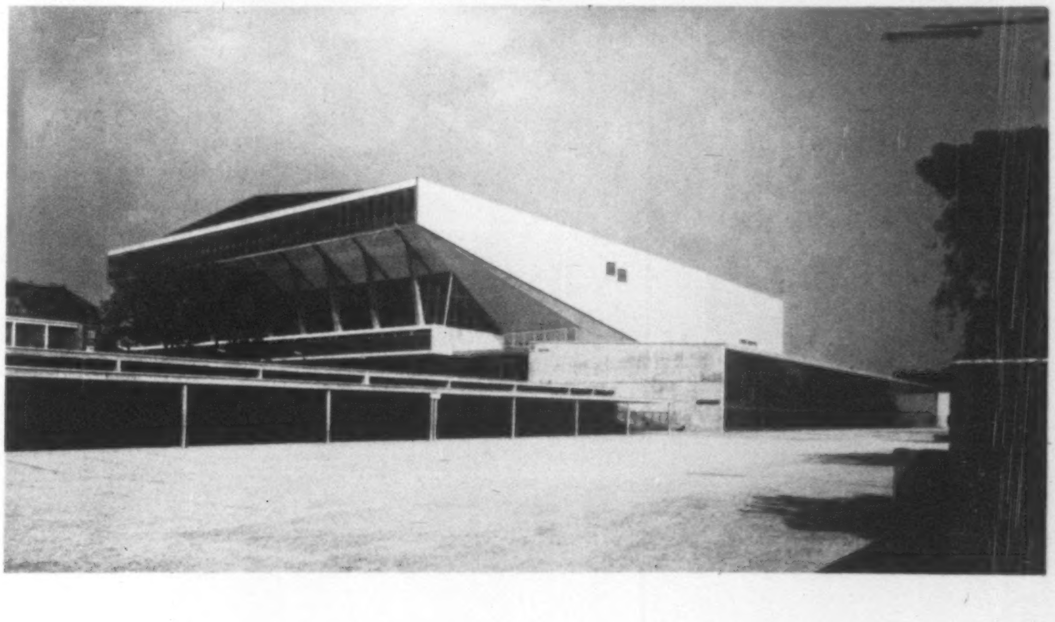
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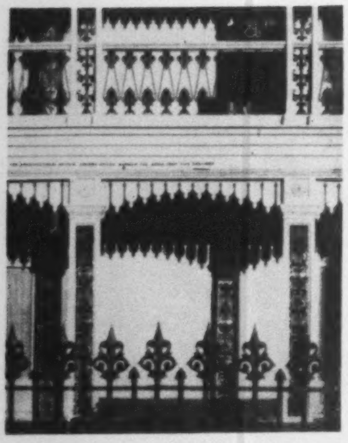
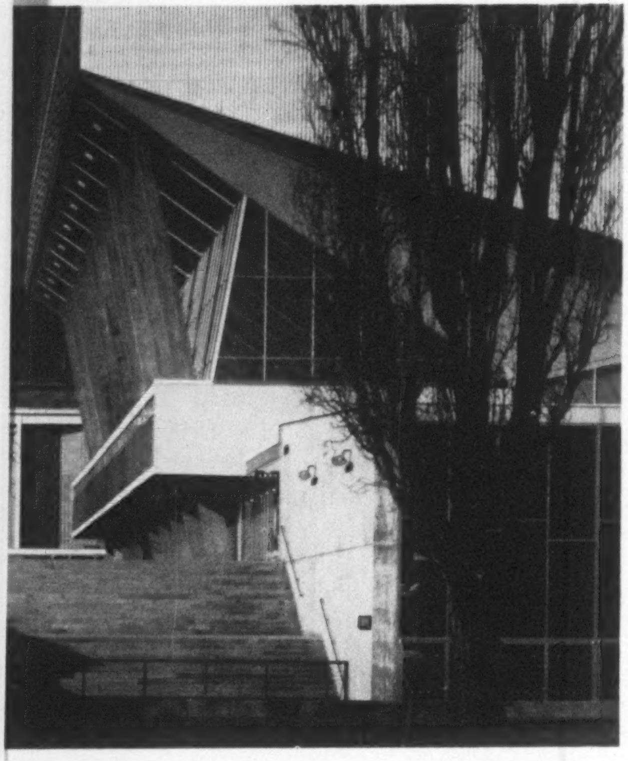
ACKNOWLEDGMENTS

Cover, E. Graeme Robertson. World, pages 221–224: 1, 4, Foto Lucca Chmel; 2, Pressestelle der Stadt Wien; 5, Tribumamus; 6, Foto Atelier Ernst Hartmann; 8, 9, Prof. H. Madensky, Arts and Architecture; 10, Forum; 11, 13, Habiter; 15, 16, Werk; 17-20, Japan Architect. Marginalia, pages 225–227; 1–3, Eric de Maré; 5, The Times; 6, John R. Pantlin. Frontispiece, page 228: Eric de Maré. School at Richmond, Yorks., pages 232–237: Galwey Arphot. Australian Verandah, pages 238–245: E. Graeme Robertson. Office Conversion at Oxford, pages 246–252: 1, 4–16, Galwey Arphot; 2, Oxford Mail; 3, Surveyor to the University. Milford Haven, pages 261–265: 1, Terence Soames; 2–4, Esso Petroleum; 5–10, 12–15, Raymond Spurrier; 11, Galwey Arphot. Interior Design, pages 266–269: Showrooms in Rome, 1–5, Foto Vasari Roma. Travel offices in the Haymarket, 6–10, Toomey Arphot. Design Review, page 270: 1, 2, Mann Bros.; 3, 4, W. J. Pilkington. Current Architecture, pages 273–277: 1, 4–7, Toomey Arphot; 8, 13–15, Colin Westwood, Architect and Building News; 9–12, Galwey Arphot. Miscellany, pages 278–282: Exhibitions; 1–3, Arthur Tooth and Sons; 4, Gimpel Fils Gallery Ltd.; 5–7, Arts Council of Great Britain; 8, Lefevre Gallery; 9, James Mortimer; 10, Arcade Gallery. History; 1–6, Galwey Arphot; 7, City Engineer Leeds. Skill, pages 283–286: 1, 11, FKV Photo Service; 2, Access Equipment; 3, Toomey Arphot; 5, Stewart Bale; 7, Sidney Bishop Studio; 9, Sidney Darby and Son; 10, Joughin Advertising Ltd. The Industry, pages 286–290: 1, Toomey Arphot; 2, Siemens Edison Swan; 3, Peter Pitt; 4, Murray-Watson.



On the cover, *the rich iron tracery and dagged valances of the canopies to a house in Melbourne, draw attention to a forgotten flowering of a unique architectural art—Australian cast-iron of the nineteenth century. On pp 238-245, Dr Graeme Robertson, who has made a special study of this early industrial art, describes both its history and the elaborate richness of its achievements.*



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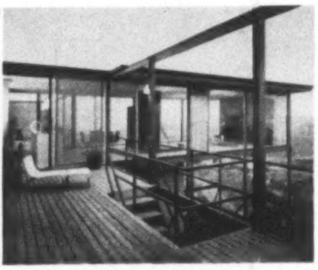
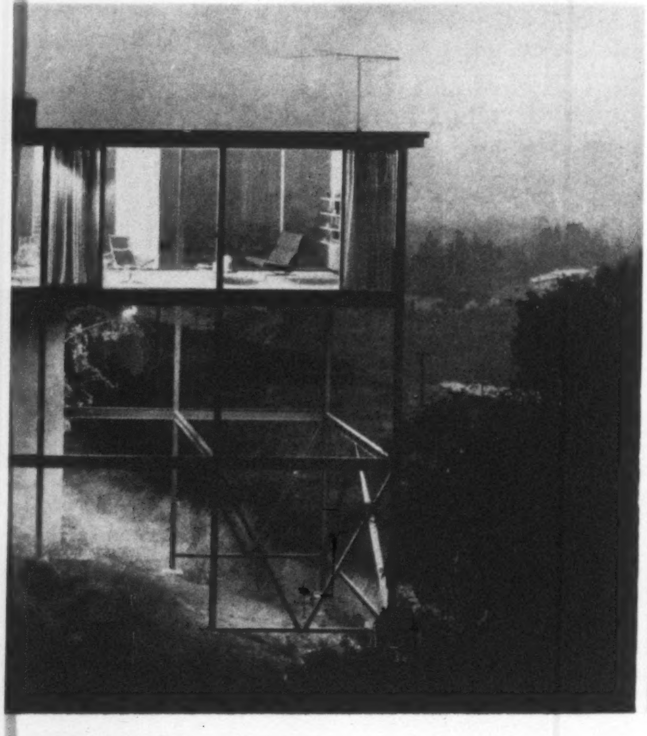




CIRCULATIONIST MANIFESTO

Debord on Planning

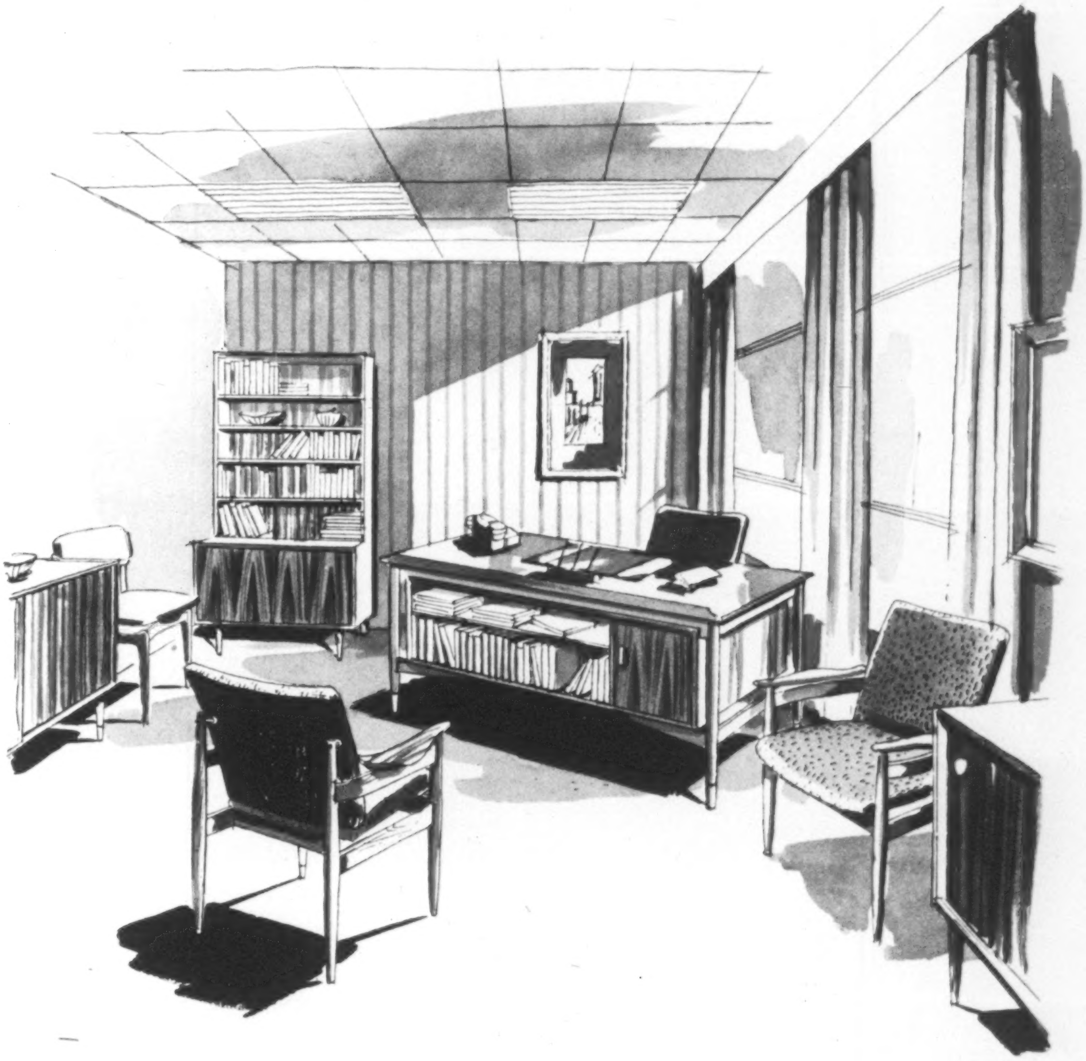
It may well be that the spectre haunting town-planning is a Situationist. Certainly, the promise of Guy Debord's early researches into the micro-psychology of towns, his plotting of gradients of psycho-geographical drift, as they were reported in AR, July, 1958, has been fulfilled in the creation of the concept of Urbanisme Unitaire.

To recapitulate briefly, the Situationist Position (to use one of the movement's pet phrases) is this—that the function of creative activity is to construct situations, that is, the 'factual construction of transient ambiences for our existence, and their transformation on to a higher emotional plane' (the translation is rough, but the terminology of the original French is specialized). For example, the function of a work of art is to create a momentary ambience, or environment, for the beholder, and to raise his responses to a higher plane.

But, equally, there are any number of pre-existing constructed environments (a phrase that might almost be used by either Situationists or Italian Neo-Libertarians) which have some emotional effect on those who occupy them, and the various parts of towns are clearly in this class. Thus one finds the Situationists simultaneously manufacturing *machines à épater les bourgeois* (such as Debord's notorious anti-film *Hurlements en faveur de Sade*) and making systematic attempts to map the intangibles of town planning. Much of Paris has been so mapped, and Debord has published the results (AR, July, 1958); an English member of the group, Ralph Rumney, was lost to the cause in an attempt to survey the urbanistic jungle of Venice, and a psycho-geographic study of Amsterdam is promised, the fieldwork to be done this spring.

Two main techniques seem to be employed in these explorations—one is clearly a simple mass-observation of the way people behave (*comportement* is a good word among Situationists) in different urban environments, the other, and more publicized technique is the assessment of psycho-geographical drift, that is, the way in which an undirected pedestrian tends to move about in a particular quarter of the town, tending to establish natural connections between places, the zones of influence of particular institutions and public services, and so forth. It may well be objected that these techniques are un-scientific, disorderly and too subjective, but the fact remains that the Situationists are studying the actual texture of towns and their relationship to human beings more intensively than most architects and in a more down-to-pavement manner than most town-planners.

For this reason, their positive proposals are worth study. Some of them are only of the nature of a current project to colonize that mysterious eyot in the Seine (the *Allée des Cygnes*) whose main function is to carry the intermediate piers of railway bridges between the fifteenth and sixteenth



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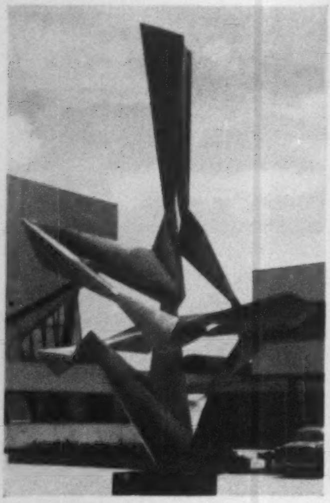
Stadthalle

approaches have been decently townscaped, 6, and the formal areas between the hall proper and its numerous ancillary buildings have been laid out not only with planting and paving, but also works of art—7 is a sculpture by Wander Bertoni in the parking/entry courtyard on the administration side of the hall.

7



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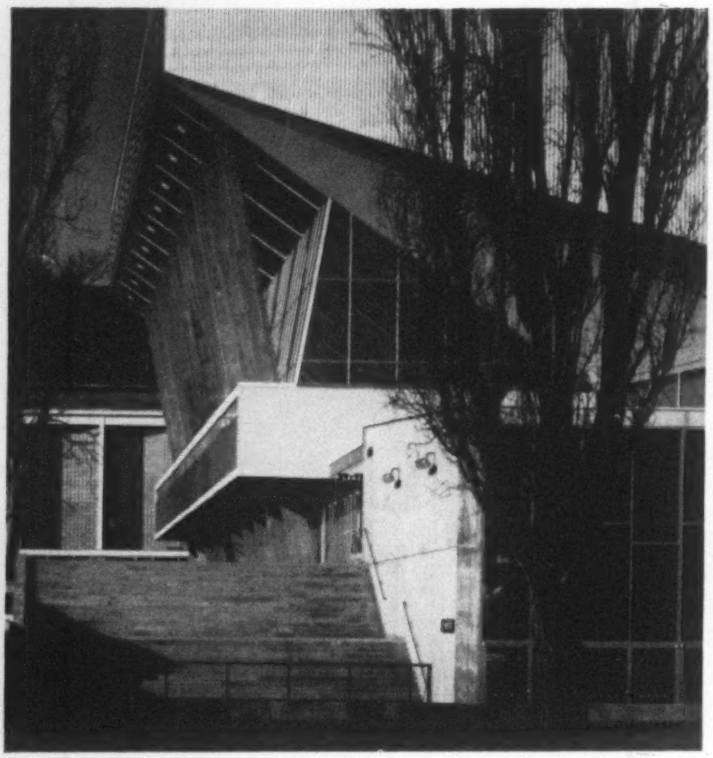

SPACE-FRAME-GAME

Periodically there comes to light a building that—whatever its other merits—seizes the attention by the way in which it exemplifies or dramatizes some aspect of modern architecture. Such a structure is the hillside house in California by Craig Ellwood, 8, recently illustrated by *Arts and Architecture* (January, 1960). Here seems to be the ultimate demonstration of modern architecture as an erector toy, a private myth that has lurked not far below the surface ever since the Crystal Palace, and frequently erupted in our own century—most recently, perhaps, in Charles Eames's own house. But here it reaches an extreme point, the whole structure becomes a neutral space-grid of horizontal and vertical members, with no apparent scale of their own, and the house is made by skinning over the top range.

The chances are that another viewpoint, or another photograph, like 9, taken from the flanking sun-deck, will reveal the house in a completely different light, but we must still remain grateful to Marvin Rand for having taken just one photograph that reveals an aspect of architecture with such startling clarity.

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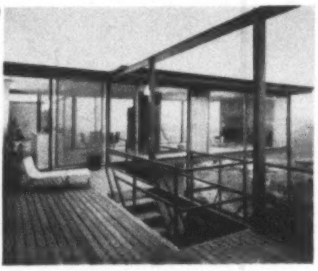

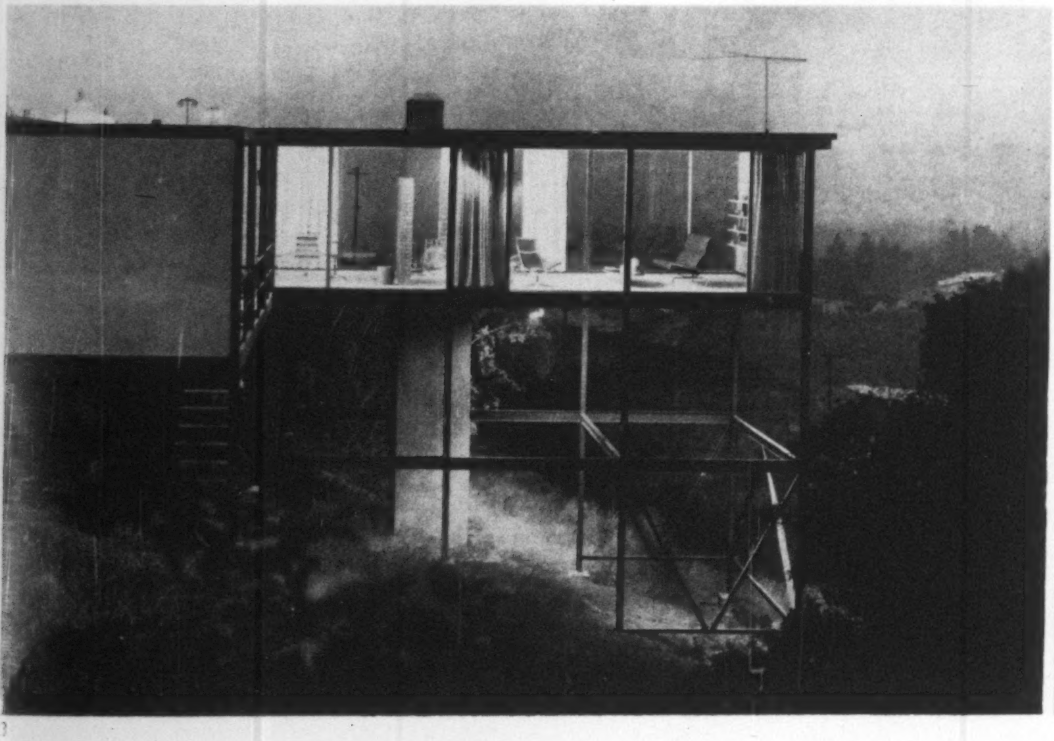

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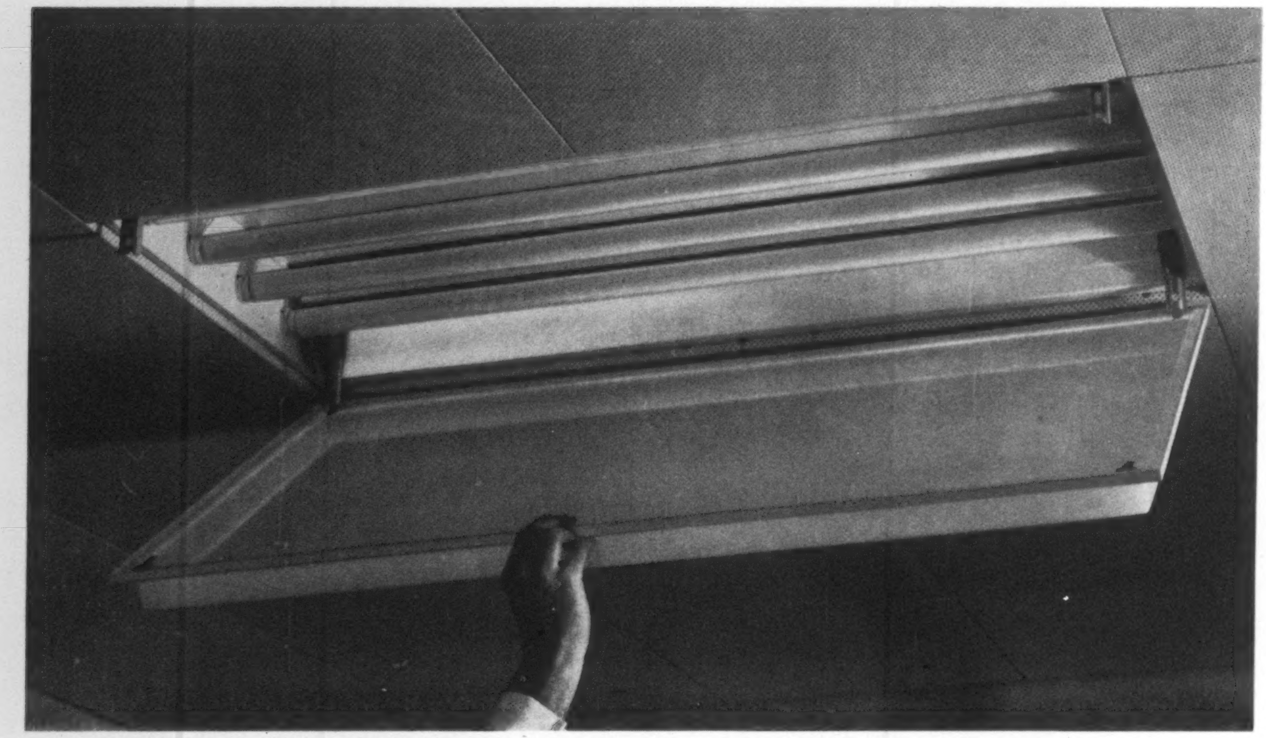

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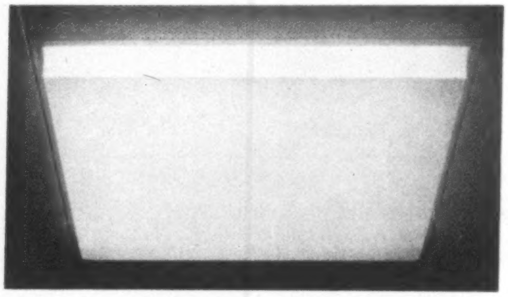

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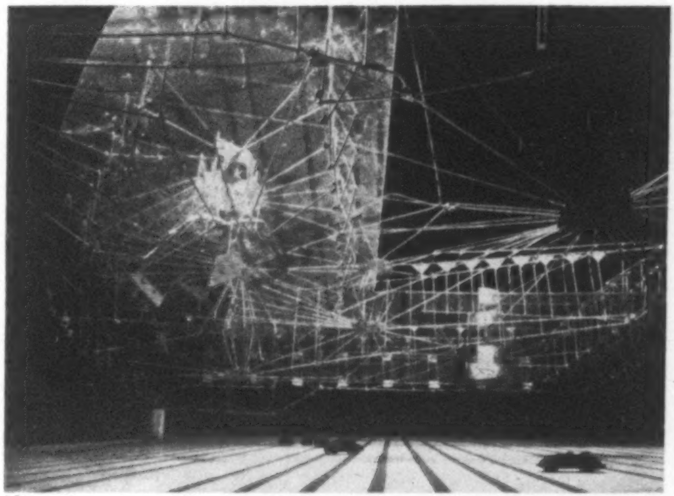
Circulationism

arrondissements. A gimmick? Possibly, but why should the third isle of Paris be uninhabited, and what a marvellous place to live, anyhow! Of more general application, however, is Debord's formal taking up of a Situationist Position on traffic circulation. The document in question appeared in No. 3 of *Internationale Situationniste*, and though some of the detailed positions may alarm and shock, the general tenor of the argument is close to much that has been said already in the pages of AR.

Debord's point of departure is that the motor-car is not a means of transport but the 'supreme good' of a way of life that has gone adrift, and that time spent in travelling is merely extra work. We must rid ourselves of this state of affairs and make transport extra pleasure. To remake architecture in terms of the demands of motor-traffic alone is to be unrealistic; architecture must be re-made in terms of *all* forms of mobility. Even if it were possible to divide a town into zones of work and residence, there would still have to be a third zone, that of life, liberty and leisure; in any case the intentions of Unitary Urbanism are against such divisions. It is not a question of fighting the motor-car, but of preventing it destroying its own function through congestion. The motor-car is not necessarily here to stay, in any case—other forms of transport may supersede it. Thus most of the allegedly practical propositions for dealing with it are quite unreal.

As will be recognized, much of this argument lies close to the lines of thought pursued by AR and the *Architects' Journal*, but the peroration reminds us that we are in another country. 'Revolutionary town-planners are not concerned solely with the movement of things, and of men stuck in a world of things. They will attempt to break these topological chains, and experiment with terrains for the circulation of men through a more authentic life.'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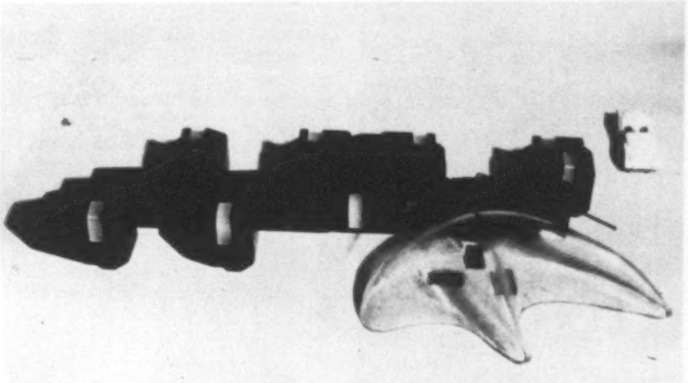
Rhetoric? Again, not altogether so. A recent edition of the Dutch magazine *Forum* (6, 1959), devoted to the integration of the arts, had a kind of Situationist supplement, expounding the concept of Unitary Urbanism, which is defined, among other things as a 'Theory of the employment of *all* the arts and sciences . . .' in the construction of urban situations, and here was an example of the creation of such a terrain—a project by the Dutch Situationist who signs himself simply as 'Constant,' for a Covered City. This would indeed break the topological chains, since it calls for nothing less than the clearance of all the ground surface for vehicular circulation, and the suspension of the rest of the city, 10, in a giant space-frame above it. In a characteristically Situationist manner this reverses the normal solution of clearing the ground for pedestrians and putting the vehicles up in the air, as in the expressways of the US.

HOUSE FOR 1960

In the first article of the AR ***1960*** series (February, 1960) reference was made to the possibility of a prefabricated house in plastics, conceived as a number of service or amenity units plugged together with standard connectors. This concept may be seen admirably exemplified in a project by Jacques Baudon which gained an honourable mention in the *Maison Européenne* competition held in connection with the 1959 *Foire de Gand*. The basic concept, as the plan shows, 11, is for a series of standard corridor units (5) plugged together and each having two side openings. To such side openings can be plugged bedrooms (1), bathrooms and kitchens (2, 3), cloakrooms (4) or living spaces (7). As the plan also shows, the living space is conceived in completely different terms to the other units, and the model shows how different. While the service and sleeping units are all self-supporting plastic shells, 12, the living room is conceived as a transparent tent, carried on four arms cantilevered from the corridor structure.

12



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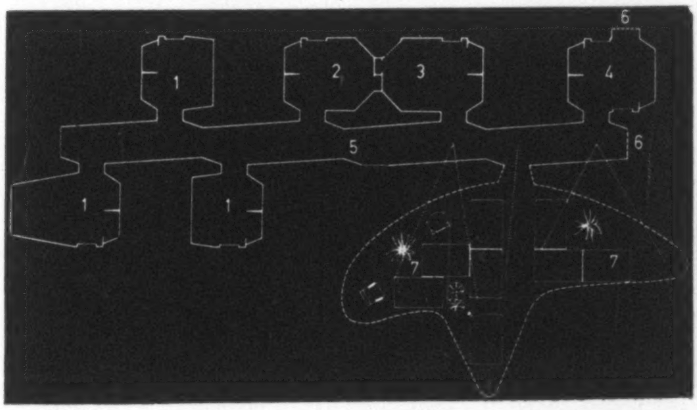
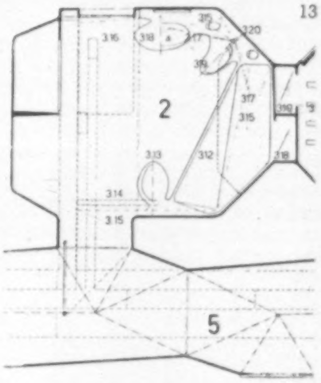


Although space-consuming, the scheme has obvious attractions, but these were not apparent to the writer who reviewed the competition entries in *Habiter* (6, 1959) and announced 'It will be like living in a railway carriage, going up and down the corridor looking for the eating compartment or the sleeping compartment; as for the living-space it is no more than an attractive fantasy.' Men have had to eat milder words than this before now, and a close study of the detailed drawings for Baudon's project suggests that the fantasy is well grounded in practical fact. The kitchen/bathroom units, 13, which span over two plugging-points on the corridor chain, have been thought through in a manner that recalls the similarly thorough studies of Coulon and Schein, or the Phelps-Dodge bathroom of Buckminster Fuller. In addition, the concept of the house as a long-chain structure, 14, affords a means of creating a genuinely expandable house without formal or domestic disorder—single bedrooms could be unplugged and replaced by doubles, or a whole extra section of corridor could be plugged in, making provision for two more bedroom additions. Conversely for a dwindling family; but in either case one interesting aesthetic point remains: it would clearly be more economical to have much shorter corridor units, but would the design then be as convincing visually?

13



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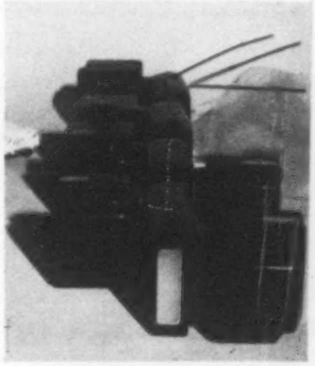


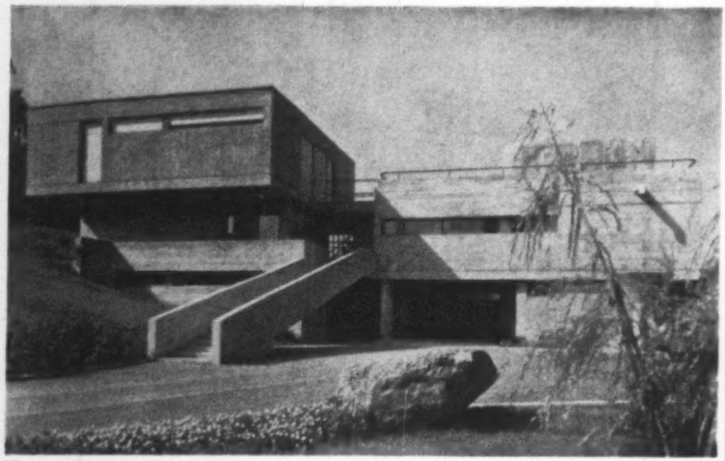
EPIGONEN

The Swiss magazine *Werk* saw out the Fifties with a leading article on the problem of 'epigonism' in modern architecture. The trend of the argument was not altogether what might be expected—a multiplicity of 'styles' within the modern movement was deplored, whether caused by a commercial desire for novelty, or by the tendency of those with a more serious approach to adhere to the following of a 'Master,' be it Wright, Mies, Neutra or whom-you-will. As a result, there is no general style of our time,

Epigonen

as there was in 1927 at the Weissenhof exhibition, and 'everything in the way of research and actual projects is being done on an individualistic basis.'

Against the background of these propositions, how is one to assess the villa at Cologny, Geneva, 15, by the Swiss architect Georges Brera which is illustrated in the same number of *Werk* (12, 1959)? At first sight this is School-of-Late-Corb, in such a way that it links immediately with Kenzo Tange in one direction and Andre Wogensky in the other—here are the same pattern-shuttered walls, muscular stair structures, hither-and-thither windows, even the same gargoyles. Here the status of epigonism is to make for international unity, rather than an excess of diversification. But the moment one looks at the elevations in their totality, 16, the picture changes, and this is no more Corbusian than is the work of a Johansen or a Bakema. The colliding and overlapping volumes belong to an altogether different tradition, and Brera's individuality appears to reside somehow in his mediation between two seemingly exclusive traditions. In this sense, at least, he contributes to the creation of a general style in exact measure as he is a true epigone of two different ways of conceiving architecture.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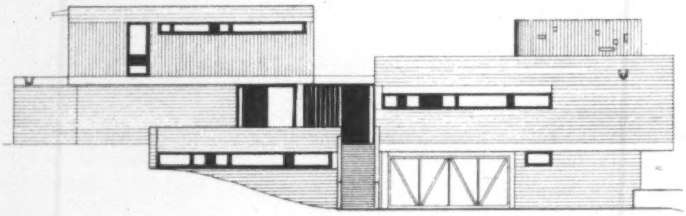
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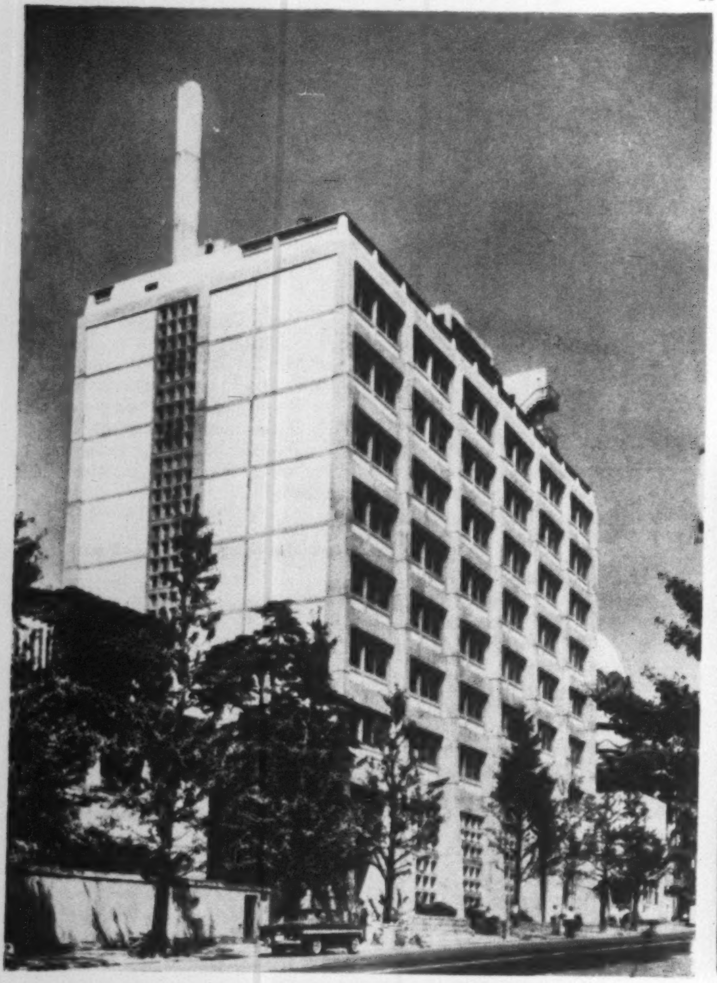
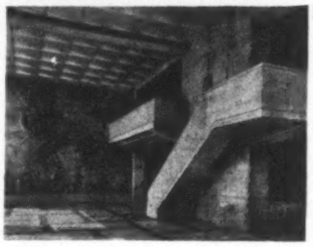

17

no.5 BUILDING

The Japanese custom of giving their new university buildings simple numbers, instead of naming them after public figures or benefactors, must often give Western readers a feeling of inadequate respect for worthwhile buildings. Eiji Miyagawa's science block for Nihon university, 17, surely deserved a more dignified fate than to be known as *No. 5 Building*. A tough-minded design in raw concrete, hollow-blocks and aluminium sashings, it is much admired, simply as good educational design but also because 'the brutalistic approach (to quote *Japan Architect*, 34, 1959) gives the edifice a distinction of its own, and the style is certainly more appropriate to a genuinely urban college than an artificial attempt at ivied walls and spacious lawns.'

However, the brutalism, and the need to pack a great deal of teaching accommodation on to a very restricted urban site, do not mean that Building No. 5 is without its graces—nearly a third of the ground floor is devoted to the entrance loggia, 18, 19, with its mural sculpture in concrete by Yazuru Ono, and the roof which is—as so often in Japanese universities—practically the only free space, has been treated as an open terrace with low sitting out of the wind, and high sitting under a three-legged canopy, 20, for the view.

18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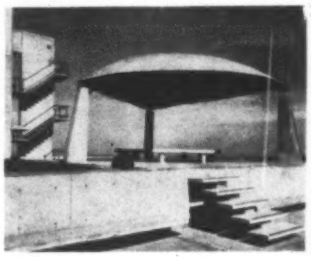
There are four floors of laboratories, and two of drawing offices, above three floors of communal facilities, library, offices, etc., and the interiors are—like the exteriors—tough but elegant in a very Japanese way, as exemplified by the second-floor conference room, 21, with its *beton brut* and spindle-shanked furniture.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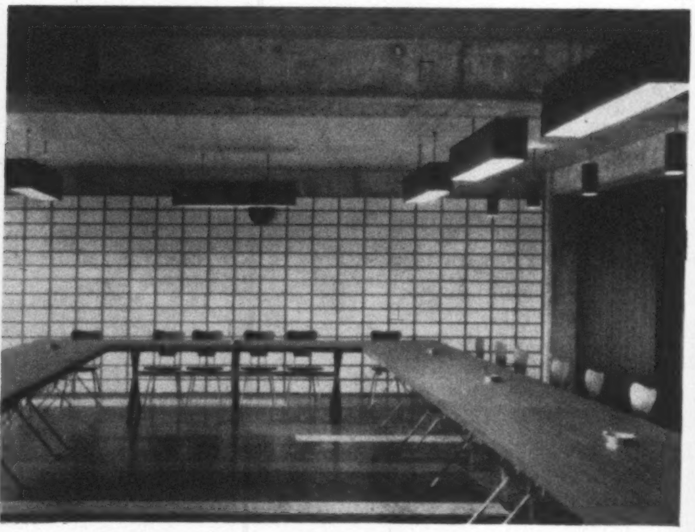
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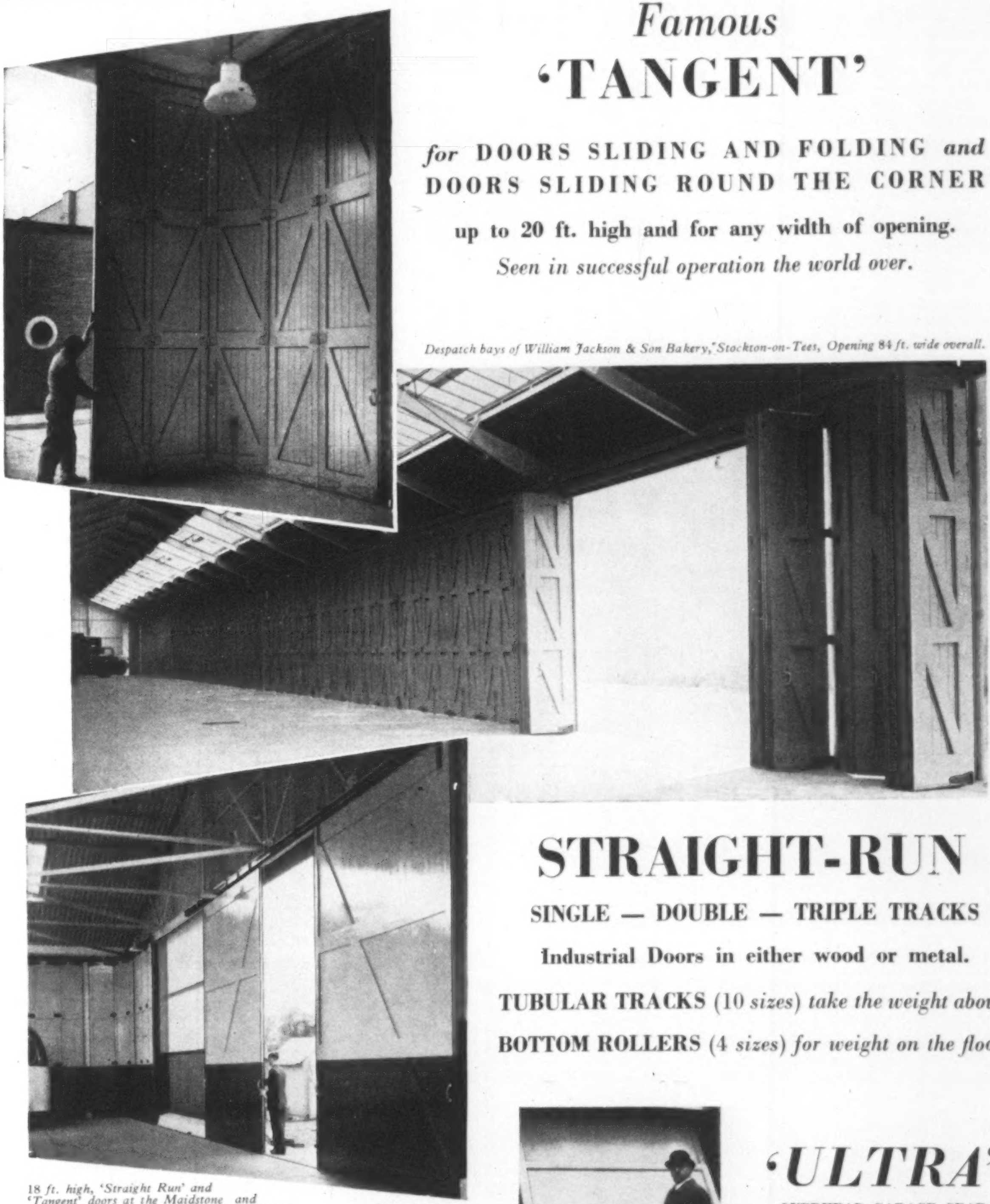

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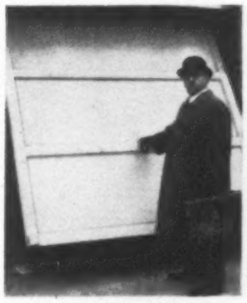

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MARGINALIA

STRUCTURAL HISTORY AT SHEERNESS

It is not often that a large building of considerable historical importance is quite unknown one year and stands fully documented and recorded a couple of years later, but this has happened in the case of the boat-store in the Royal Naval Dockyard at Sheerness which is the subject of our frontispiece this month—page 228.

It was noticed by Mr. Eric de Maré when he toured the naval dockyards taking photographs for the special issue of the REVIEW entitled 'The Functional Tradition,' published in July, 1957.* The interest of the building was evident, and he and Prof. A. W. Skempton decided to investigate it further. They did so with great thoroughness with the co-operation of the Admiralty and the Public Records Office and the help of Miss Carlotta Hacker and Mrs. Charlotte Baden-Powell. The results were given in a paper read by Prof. Skempton to the Newcomen Society on February 3 this year.

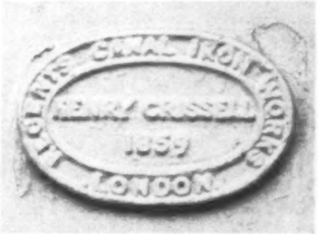
'A mere eight years later than the Crystal Palace,' he said, 'it (the Sheerness boat-store) seems to belong to a different age in spite of the advanced technique of that work. Moreover the boat-store was completed twelve years before the famous Menier factory in France, traditionally though quite incorrectly considered to be the first multi-storey iron-framed building. Also, the Menier factory is far less elegant structurally, whilst architecturally it is altogether typical of the late Victorian period.'

The boat-store, on the other hand, looks forward to the frame-and-fill aesthetic of a hundred years later. It is in fact just a hundred years old. Prof. Skempton was able to examine the original working-drawings, which are dated 1858; the iron columns bear plaques dated 1859; Admiralty records show that the builder's final account was settled in August, 1860.

The drawings are signed by G. T. Greene, who was Director of Engineering and Architectural Works to the Admiralty from 1850 to 1864. Prof. Skempton's researches prove that Colonel Greene designed the building personally and he thus emerges as a significant figure in the development of iron structures. The boat-store is not only a very early example of a multi-storey building with exposed iron frame, but is perhaps the first to use the simple H-section columns and beams in place of the more elaborate decorated forms typical of the period. In his paper Prof. Skempton analysed in some detail the building's relationship to other pioneer iron structures, and also paid some attention to its builder, Henry Grissell (1817–83), proprietor of the Regent's Canal Iron Works, who was an iron founder and constructor of some note, pupil and assistant of Bramah and collaborator with Robert Stephenson. Prof. Skempton described the workmanship of the boat-store as first class.

The inside of the building is as impressive as the outside. It consists of two four-storey aisles flanking a high central nave. The latter is spanned by three travelling gantries, one at each floor level. Boats are manoeuvred into position on the floor, hoisted on to a trolley on one of the travellers which is moved to its destined position, and the trolley carrying the boat is then run off on to the adjacent upper floor. The whole structure is 210 ft. long and 135 ft. wide and is lit through lights in the roof of the nave and by continuous windows along either side at every floor level, interrupted only by the exposed iron columns, 15 ft. apart. The spandrel panels are of corrugated iron, set in behind the column flanges. The internal columns, including the main columns either side of the nave (spanned by riveted plate girders) are spaced 30 ft. apart longitudinally, and each aisle has four rows of columns 14 ft. 6 in. apart transversely.

With only minor alterations the building stands exactly as it did, but within the last few months, in accordance with the previously announced plan for the reduction of naval establishments, the Admiralty has withdrawn from Sheerness and the dockyard has been taken over by Building Developments Ltd. for use by private industry. The best of the early buildings there are scheduled, but experience makes us aware that that does not do enough to safeguard buildings which, as in this case, are of outstanding historic value.



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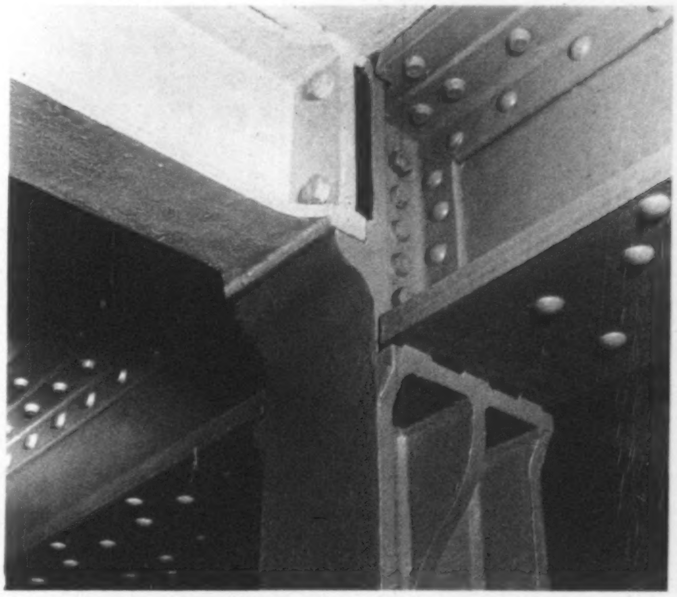

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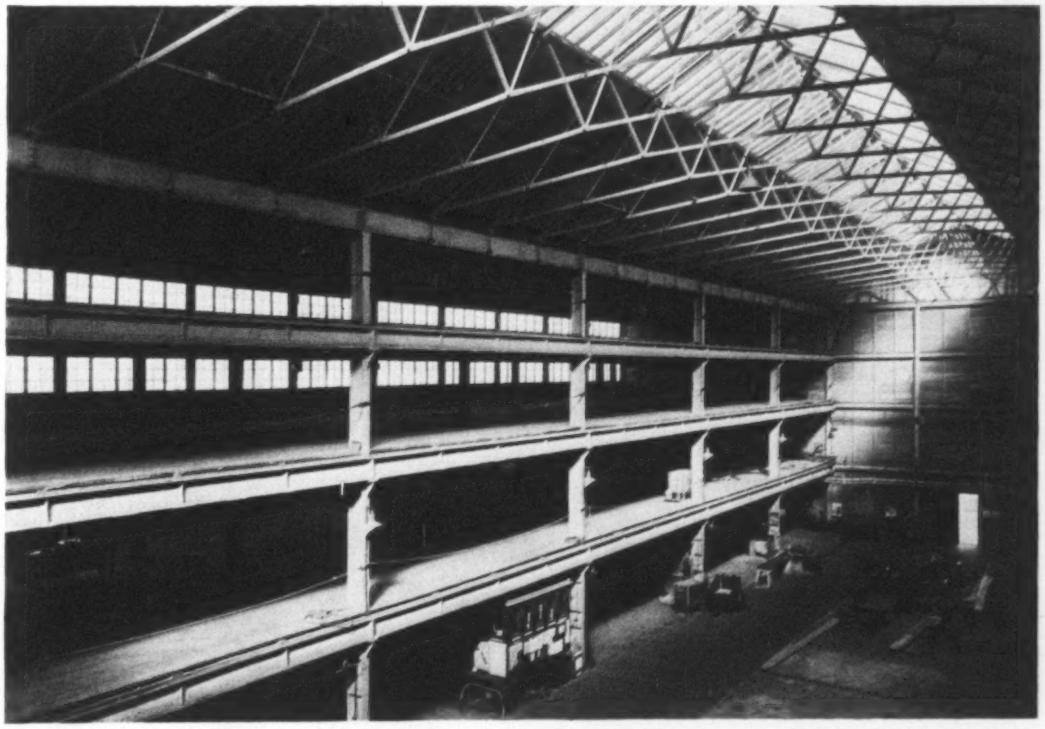

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1, interior of the boat store at Sheerness, showing one of the four-storey aisles.
2, a date plaque from one of the iron columns.
3, detail of the junction of column and beams.

NEW LIGHT ON LEONI

New information concerning the early career of Giacomo Leoni, especially as regards his relationship with Nicholas Dubois, has recently been brought to light by the discovery, in the library of McGill University, Montreal, of an unpublished manuscript by Leoni dated Dusseldorf, 1708, and consisting of studies of the Five Orders, together with a treatise on elementary mathematics for the use of engineers.

According to Professor Wittkower's article on Leoni's great edition of Palladio, published in *Arte Veneta* in 1854, Leoni is first heard of working at the Elector Palatine's castle at Bensberg, near Cologne, where he probably arrived in 1708 or 1709 (although it may be noted that he is not mentioned in G. M. Raparini's MS. of 1709, which contains biographies of the artists then working at Bensberg).

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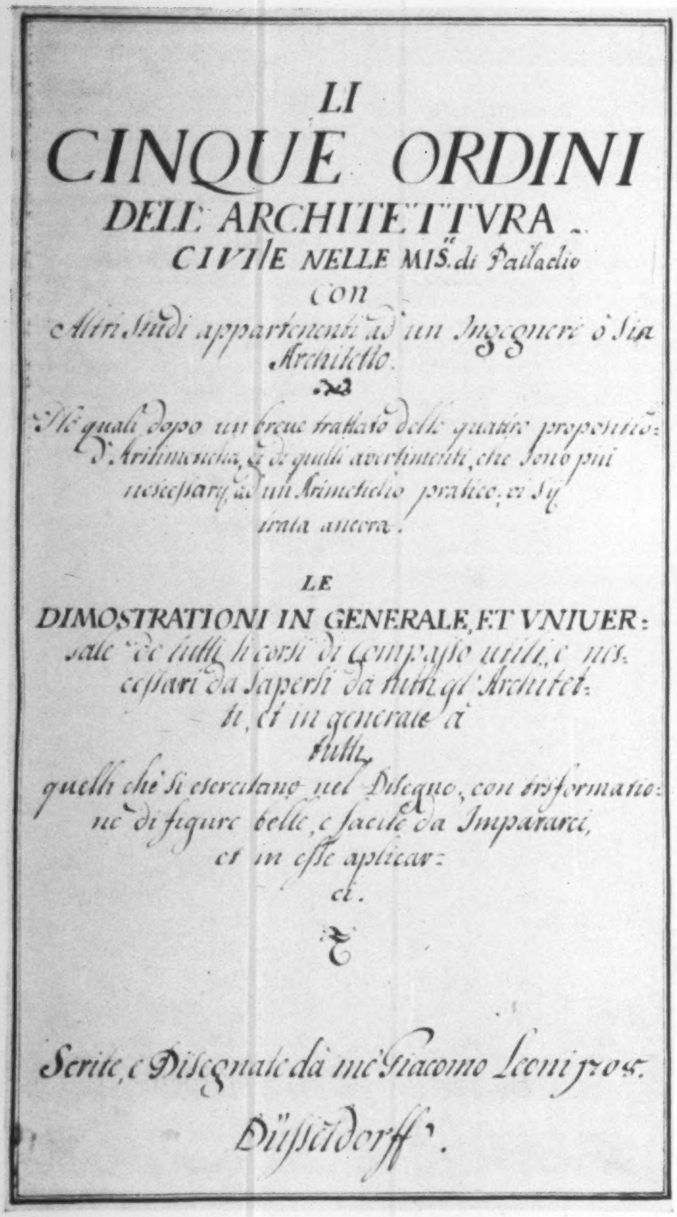
* And for the book arising out of it: *The Functional Tradition in Early Industrial Buildings*, Edited by J. M. Richards. The Architectural Press, 36s.



LI
CINQUE ORDINI
DELL' ARCHITETTVRA
CIVILE NELLE MIS.re di Palladio
con
Altri Studi appartenenti ad un Ingegnere ò sia
Architetto.

Alli quali dopo un breue trattato delle quattro propositio:
d'Aritmetica, et de quelli avertimenti, che sono più
necessarij ad un Aritmetico pratico; et sij
arata ancora.

LE
DIMOSTRATIONI IN GENERALE, ET VNIVER:
sale de tutti li corsi di Compasso utili, e nes:
cessari da sapersi da tutti gl' Architet:
ti, et in generale à
tutti
quelli chi si esercitano nel Disegno, con trasformatio:
ne di figure belle, e facile da Impararci,
et in esse aplicar:
ci.

Scrite, e Disegnate da me Giacomo Leoni 1708.

Düsseldorff.

4, *title page of the newly discovered Leoni manuscript.*

Similarly Leoni's meeting with Dubois, who later 'provided the English as well as the French translation' of the 1715 Palladio, is ascribed by Professor Wittkower (for want of any other evidence) to the period after he arrived in London (c. 1713). Yet the McGill MS. suggests that by 1708 Leoni was already in Germany, was already re-drawing and amending the 1570 woodcuts of Palladio's Five Orders, and was already collaborating with Dubois (then a military engineer with Marlborough's forces) since four-fifths of the MS. is in French. Furthermore, certain errors in translation suggest that Dubois, far from providing a French translation from the Italian in Leoni's trilingual edition of 1715–20, merely used the existing translation of Fréart de Chambray (published in 1650) and re-translated this into English.

Peter Collins

NEW PRINTING-HOUSE SQUARE

One of the most surprising examples of enlightened patronage of modern architecture in a place where superficial thinking might not have expected to find it, is the commissioning of new buildings for *The Times* from Richard Llewelyn-Davies and John Weeks (in association with Ellis, Clarke and Gallanaugh). Llewelyn-Davies, whose reflections on the impact of new sciences on architecture appeared in last month's AR, has been one of the hero-figures of the tough-minded intellectual approach to architecture in England since the war and his contributions to research (through the Nuffield Trust) and to design (usually in partnership with John Weeks) have constituted one of the most radical aspects of recent English architecture. To find him now as architect to *The Times*, not long after his appointment to the head of the Bartlett School, suggests that 'The Establishment' is not what it was—and also, possibly, that Modern Architecture has matured somewhat and gained the kind of authority that impresses men occupying positions of authority.

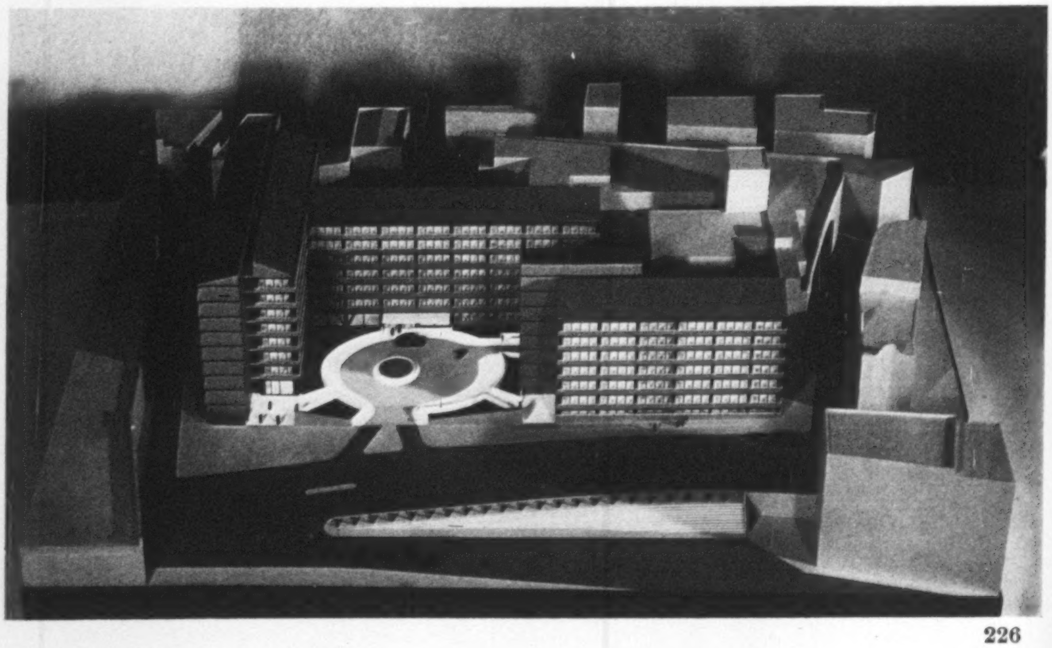
The new buildings, as seen in the model, 5, are grouped around a new Printing House Square, the traditional (and only) home of *The Times*, but the square itself has been opened out to Queen Victoria Street, which is (in terms of town-planning history) a newcomer to the area and lies in the foreground of this picture—with Blackfriars railway bridge on the left and Lower Thames Street sloping down to the bottom right-hand corner and the Mermaid Theatre. The rebuilding programme affects only the editorial and administrative offices of the paper, since the printing works has been rebuilt and modernized quite recently. Work is expected to start within a few weeks of these words appearing in print, and the scheme may be completed some time in 1964. Re-development will be phased to avoid any complete breaks in the production of *The Times* on its time-hallowed site.

PRE-CAST MURAL

One of the side benefits of recent theorizing about the integration of architecture and the major arts—a side benefit for which architects might be more openly grateful—is the rapid evolution of techniques of mural art that give an end-product more brilliant in its optical qualities, more stable (in the sense of needing less routine maintenance) and more adaptable to current building techniques, than were the traditional methods of fresco-painting and mosaic. The mural by Keith Sutton, 6 (over page) in the entrance to a factory at Harlow New Town (architect, Z. P. Slaski) represents one of the extreme points to which a traditional technique—mosaic—can be brought by new methods and new ideas. The work was executed *à premier coup* by the artist's hand, the sections of coloured glass being cut to size by him and laid directly on a horizontal 'Layout table' so that the developing design could at all stages be directly assessed in terms of its ultimate effect (though reversed mirror-wise) and adjusted accordingly. When it was completed, coloured concrete was poured over it, and suitable reinforcing rods and attachment tags were cast in to the slab, which thus became a pre-cast and—so to speak—prefabricated element ready for transportation to the site, and installation.

The suggestions for further integration of the arts contained in this technique may well be worth pursuing. Clearly, this approach demands greater architectural sensibility from the mural designer, since he will not be able—as he would be if he worked on the site in a nearly completed building—to examine the progress of his effects on the surrounding space, as the work proceeds, but it may also demand even greater all-round aesthetic sensibility from the architect, since there will be, in many cases, some pressure on him to commission the mural mosaic at a very early stage in the design, especially if it is to be applied to structural members. As will be seen, this is in essentials a procedure already known to the building industry from the opposite viewpoint, i.e. the application of special aggregates to concrete surfaces

5, *the model of the new* Times *offices with Queen Victoria Street in the foreground.*



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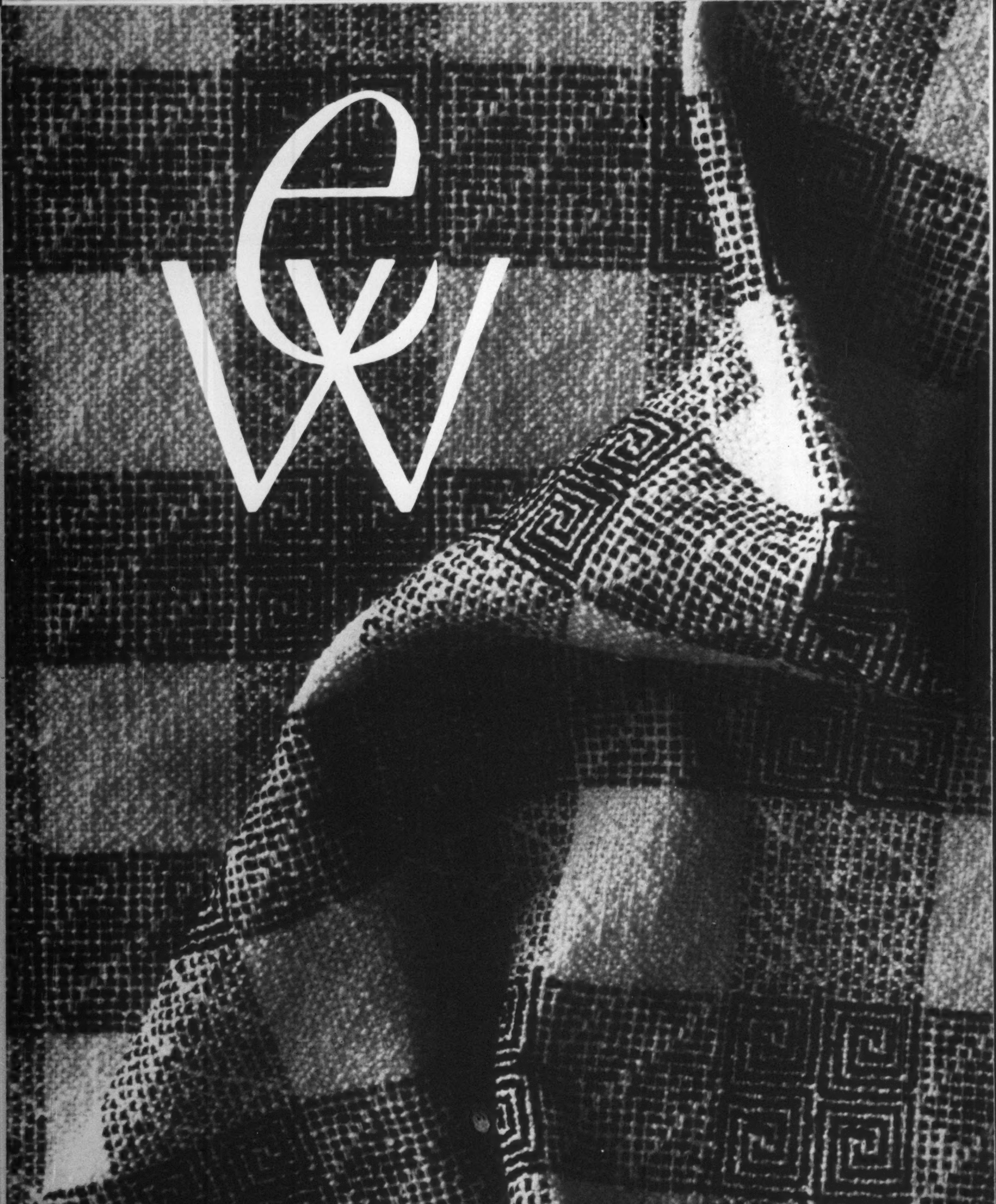

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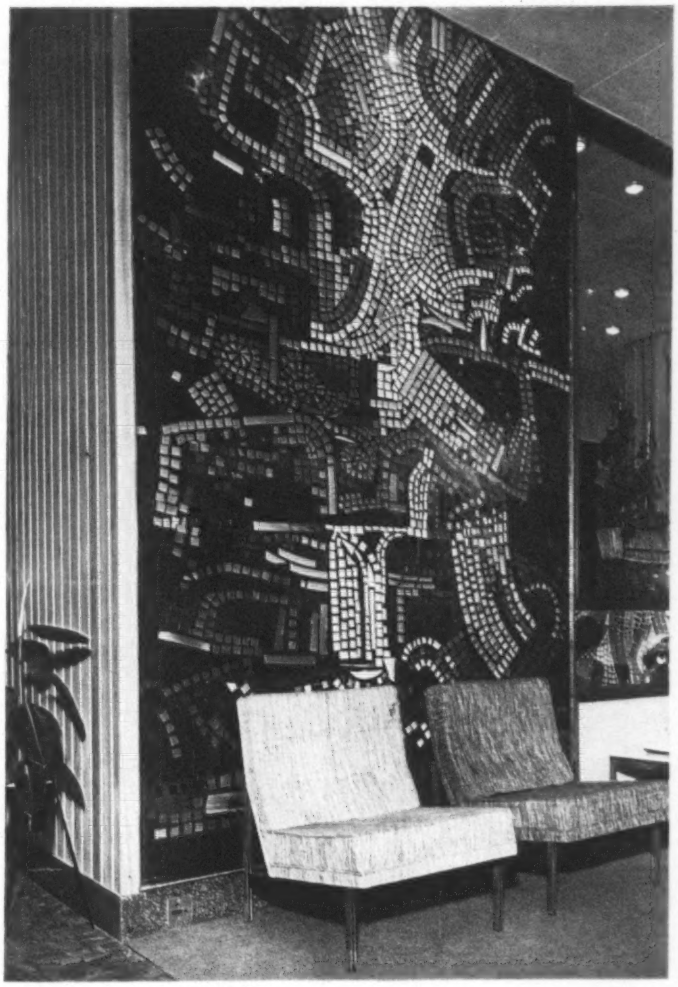


6, *Keith Sutton's mosaic mural at Harlow.*

by spreading them in the bottoms of moulds before the concrete is poured in. Suitably adapted it could be applied to the creation of external decorative works cast into structural elements before erection, and thus obviate difficult and expensive operations on the scaffolding while the building is actually going up. But, under these circumstances, there will be no chance of last-minute changes of mind or taste, the mural works will have to be part of the conception of the building from the very beginning.

OBITUARY

SIR GILES SCOTT, 1880-1960

The triumphs and tragedies of Sir Giles Gilbert Scott's career were both signalled by cathedrals and power stations—a situation that is a fair mark of his transitional position between a traditional architecture and a technological world. The triumphs were his winning of the competition for the new Liverpool cathedral in 1902, at the remarkably early age of 22, and his creation, in the classically-chimneyed power station at Battersea, of one of the half-dozen landmarks by which London is recognized and by which the viewer on high places can orient himself. The tragedies—the tragedies of an age that had outgrown his approach to architecture—were the disputed but completed Bankside power-station, opposite St. Paul's, and the acrimonious discussions over his proposed design for the rebuilding of Coventry cathedral—discussions so heated that he was led to resign the commission, an action which paved the way for the subsequent competition and Basil Spence's winning design.

But by the time he died in early February, Scott had much more than these four schemes behind him; his total output may not have rivalled that of his grandfather, Sir Gilbert Scott, but it was considerable and included, besides a variety of religious, university and secular buildings, the difficult collaboration with engineers that resulted in the final form of the new Waterloo Bridge. His work has been much praised, much abused, but often little understood. As a contribution to the better understanding, THE ARCHITECTURAL REVIEW will shortly publish, as an appropriate tribute to him, a small selection of photographs drawing attention to the forgotten good qualities of some of his early work.

BOOK REVIEWS

NASH TENANTS

VILLAS IN REGENT'S PARK. *By Enid Cecil Samuel. Published by the Marylebone Society. 5s.*

This pamphlet of thirty-six pages with fifteen illustrations in half-tone and a plan was brought out by the St. Marylebone Society as their first publication. May it soon be followed by others. It is valuable and entertaining. It deals with the villas in Regent's Park, and chiefly their tenants. The architecture is treated in two or three pages, based—as could not be otherwise—on Sir John Summerson's *Nash*. The Park Villages, East and West, are unfortunately not included. As for the tenants, the pattern is curiously similar in most cases. The villas have always had an attraction for outlandish characters. This reached its climax about and after 1900, but, when the bloodless revolution of the mid-twentieth century had swept through Britain, their cost made them inaccessible to private people and they went to public or semi-public bodies. Among early tenants was Baldemero Espartero, Duke of Vitoria, Duke of Morella, Prince Vergara; there were also Baron de Bunsen and Joseph Bonaparte, brother of Napoleon. Among later tenants we may pick out the Count de Avellano de Ramirez, Lady Ribblesdale née Ava Willing, of Philadelphia, and former wife of J. J. Astor, the Countess Haugwitz-Reventhlow née Barbara Hutton, Prince Serge Obolensky, William Meyerstein, of Hanover, and the Marquesa de Brecera. Now it is the Nuffield Foundation, the Islamic Cultural Centre, Bedford College, the American School. The lists of tenants are not without mistakes. Sigismund Goetze is Goetze and not Goertze, and the most recent Astor connexions have also gone slightly wrong (page 23).

N. Pevsner

DECORATIVE REPRINT

L'ART DECORATIF D'AUJOURD'HUI. *Le Corbusier (2nd edition, with new preface by the author). Paris, Vincent Freal. No British price given.*

The famous images of cars and aeroplanes, Greek temples and grain elevators that adorn the pages of Le Corbusier's *Towards a New Architecture* have been worn flat with familiarity and use; they have no more impact than the platitudes of a retired revolutionary. The images in *L'Art Decoratif d'Aujourd'hui*, re-published after thirty-five years, have the impact of a re-discovered tape recording of the revolutionary in his prime, and their own freshness restores the shine to those that had become platitudinous. If one had tended to forget that the pictures in *Towards* proved a unique command of culture, ancient and modern, this alternative sampling from the same spectrum—modern equipment to ancient art—will awake the recognition that Le Corbusier's tastes in 1925 had the same catholicity as the Brutalists' long reach from Delos to Detroit today.

The text, by contrast, is a disappointment—the rhetorical bones of an ancient quarrel, since the book is made up of essays written in *L'Esprit Nouveau* to discredit the Exposition des Arts Decoratifs in 1925 in advance. However, the text sheds marginal illuminations; the new introduction gives the history of the *Pavillon de l'Esprit Nouveau*, and the last chapter is a primary source of biographical information on the days when C-E. Jeanneret was preparing to pupate and metamorphose into Le Corbusier.

But it is the illustrations that matter—they occupy more than half the printed page-area, and no one who claims to know his Corb can afford to be ignorant of them.

P.R.B.

SHORTER NOTICES

ARCHITECTS' WORKING DETAILS: 6. *Edited by D. A. C. A. Boyne and Lance Wright. Published by The Architectural Press. 25s.*

For the first time a volume in this series is devoted to foreign examples, most of them collected by the Journal's travelling students. The examples are most interesting and the volume as a whole is the most authentic international record of architectural detailing extant anywhere in the world.

SPECIFICATION 1960. *Edited by F. R. S. Yorke, FRIBA. Assistant Editor: Penelope Whiting, ARIBA. Published by The Architectural Press. 35s.*

New this year is a section on Landscape work (but limited to the shaping of earth and laying of lawns). Both the Painter and the Lighting sections have been excellently re-written and there is a long-overdue (but not *quite* sufficient) note on site investigation. Apart from this, there is the usual necessary tinkering all along the line.

RESTAURANTS, CAFES, BARS. *By Alexander Koch. Verlagsanstalt. Alexander Koch. GMBH, Stuttgart.*

A companion volume to the same author's *Hotel Building*. Captioned in English, French and German, this forms a useful reference book of recent designs throughout the world. The photographs are excellent with clear plans and informative captions.

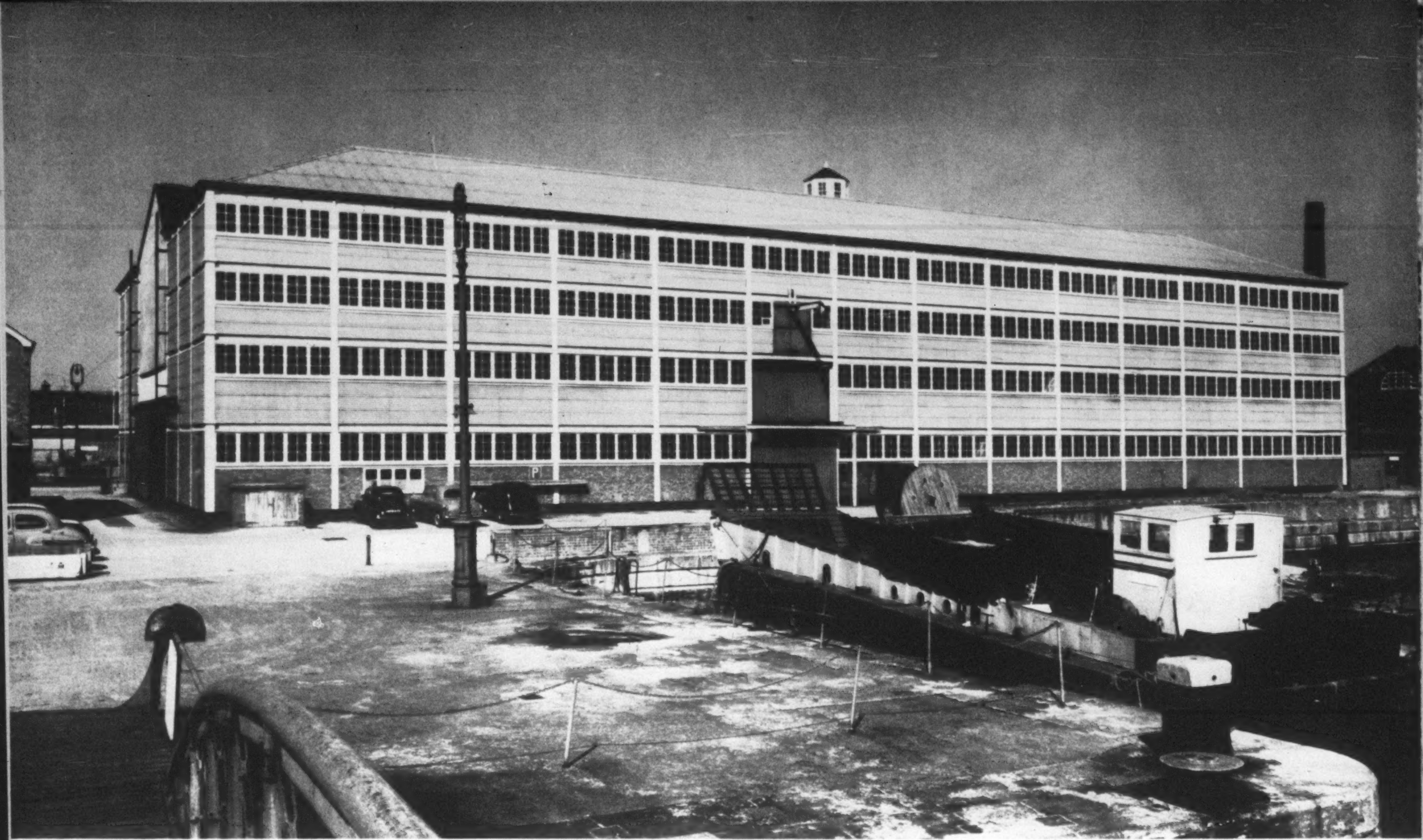
A PICTURE HISTORY OF THE ENGLISH HOUSE. *By R. Furneaux Jordan. Edward Hulton. 35s.*

The photographic collection of the National Buildings Record has been drawn upon to compile this useful pictorial narrative of English domestic architecture, which has the unusual merit of devoting a good proportion of its space (about 160 pictures out of 390) to the nineteenth and twentieth centuries. Visually the subject is somewhat confused by the inclusion of blocks of flats in the later sections, though if the book is to be regarded as a picture of how English people have lived, there are obvious justifications for doing so.

Mr. Jordan's text, in the form of an introduction to each of seven sections and captions to the pictures, is fully informative, not only about changes in taste but also about the social changes that gave rise to them.

DECORATIVE ART, 1959-60. The Studio Year Book of Furnishing and Decoration. *The Studio. 35s.*

This useful annual round-up shows fewer variations in taste and lapses in judgment than in some previous years. In fact it now offers a useful cross-section, based on material drawn from all over the world, of current interior design in the COID-sanctioned idiom, with only a few discreet excursions into fashionable pastiche. As usual the volume opens with illustrations of a number of houses (chosen on no very clear principles from half a dozen countries), with exteriors as well as interiors, but no plans. It then deals with their various types of contents, grouped under furniture, tableware and silver, textiles, glassware, ceramics and metals and light-fittings.



The boat-store in the Royal Naval Dockyard at Sheerness, which occupies a key position in the known history of iron structures as well as anticipating in a remarkable way the expression modern architects have given to the framed building, is exactly a century old. It was the subject of a paper read to the Newcomen Society in February by Prof. A. W. Skempton of the Imperial College of Science, following research into its origin and significance carried out by him and Mr. Eric de Maré (who took this photograph). This important building, unknown until Mr. de Maré discovered it when collecting examples for the *Review's* 'Functional Tradition' issue two years ago, stands almost unchanged since it was completed in 1860, but now that Sheerness Dockyard has been handed over by the Admiralty to private industry, there must be anxiety about its future until assurances are given that it will be properly looked after—see also page 225.

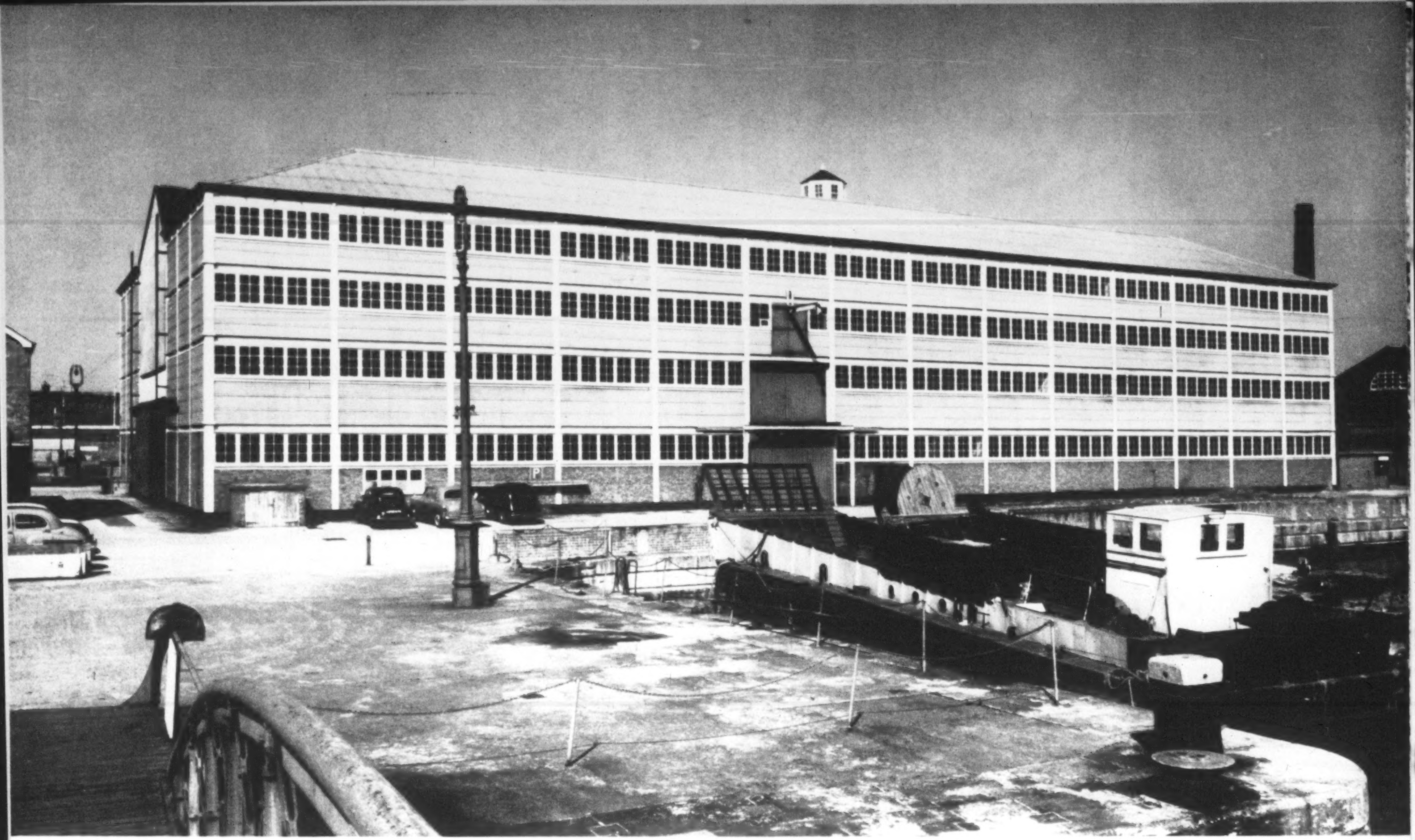
Ian Nairn

THE MINDLESS MASTER

In many ways the biggest problem for the second half of the century is whether man can win the war against the various technological tools which his extreme ingenuity has created in the first half. More and more, the struggle begins to look less like Communism versus Capitalism (this is a kind of family squabble anyway) and more like man versus his creations. Smog, insecticides, strontium 90, the misuse of penicillin, all seem to point in one direction—that man has fiddled a bit too much and too stupidly with the natural order and it is coming back and hitting him. Frankenstein is on the run from his monsters.

Of all these depressingly various alarm bells, the most immediate and most personal is, of course, the motor car. The apposition here is point blank: you can have unlimited use of unlimited cars in their present form and you can have urban communities but you cannot have both. Which is going to win? In the long term there can be only one sane answer—the town or community, if for no other reason than that every new-born human being will have this desire to congregate and make a pattern out of living with his fellow men. It is ineradicable, and it can never be replaced by a substitute—the new patterns of mobility, as they are thought of at the moment, are illusions which destroy what they seek to enjoy.

If the long term objective is agreed to, then the only sensible short term objective must be a vast holding action, done with psychological subtlety and sleight of hand—a retreat *to* Mons, if you like, because Mons, with one of the best town centres in Belgium, represents exactly the sort of urban community whose pattern must be presented intact. Every piecemeal road amelioration—it can be nothing more—must be



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To take this a bit further I need (not before time) some facts and figures. They are taken largely from a recent issue of *The Architects' Journal* called Metropolis, edited by Malcolm MacEwan, which described the extent of the problem more clearly than has ever been done before:

First: We have the most crowded roads in the world (one vehicle to every 42 yards), yet our level of car ownership is less than one-third that of the U.S.A.

Second: The number of vehicles in Great Britain has increased by fifty per cent in the last five years.

Third: At the moment, only seven per cent of London's commuters arrive by car. If this were to be increased to twenty-five per cent, the parked cars would occupy 1.9 square miles, or approximately the area of Mayfair.

Fourth: Approximate calculations by the LCC show that, in central London, multi-storey off-street parking costs about £1,500 per place; but the cost of widening streets and then allowing cars to park on them has been worked out at about four times as much.

Fifth: The traffic plan for Cumbernauld New Town, now being constructed outside Glasgow with an eventual population of 70,000, has been designed on the basis of a realistic traffic forecast for the next fifteen years. To keep the traffic moving properly it requires a road plan as elaborate as that of an American city.

Sixth: A similar traffic forecast up to 1980 for Washington DC, has come to the conclusion that to provide enough space for the calculated increase in the number of cars—what they called an auto-dominant system—is simply not possible. The balance would have to be made up with improved public transport.

Add to these facts an observation, which I think is generally acceptable: that in and around most conurbations, traffic will obey a kind of Parkinsons Law and fill the space made available for it. Congestion in cities is not a straightforward and static problem to be relieved by building more roads, but a continuous shifting dialectic between the convenience of having a car in town* and the difficulty of getting about in one. As long as this operates, traffic will never seize up entirely. Secondly, in the British road system at its worst—the two-lane main road carrying heavy traffic—the speed becomes that of the slowest vehicle. The traffic only stops or jams if a bottleneck is added to this.

There are probably several conclusions to be drawn from all these facts—the British Road Federation, for example, adduces something quite different from what they seem to prove to me. What I see in them first is that any attempt to provide space in towns for the natural growth of automobiles in their present size and shape is out of the question. It can only lead to universal Los Angeleses, with each unit the size of East Anglia, and Los Angeles doesn't even work in traffic terms, on the Americans' own admission.

Once this is realized the problem becomes one of removing the bottlenecks, giving as even a flow as possible on the existing system and allowing *laissez-faire* to take over. (I am not talking here about motorways from one urban centre to another and I hope I can make clear that I mean the *laissez-faire* to apply only to the new road construction part of the traffic problem.) We have got to face this in fact, whatever fancy names we give it to deceive ourselves and public opinion: new roads are no solution. The only thing to do is to smooth out the rough places and let the remainder be. There I find myself in surprised agreement, for quite different reasons, with the Committee on London Roads. Tied to a tight budget, and operating with traditional British conservatism, this is just the sort of programme they have produced and been berated for—though significantly, in the list of schemes proposed for a hypothetical £200 million 20-year programme instead of the present likely £120 million, there are already a number of widenings which are by this standard relatively useless; i.e., they are simply uniform enlargements of roads which are without intractable problems—Kennington Lane, New Kent Road, the South Circular Road at Dulwich, Waterloo Road—as well as attempts to improve the unimprovable, e.g. King's Road, Chelsea.

And, outside London the borough engineer of a provincial town, will, all too often, solve his road problems by widening everything. The LCC have realized and proved, as far as such a thing can be proved, that uniform street widening is so expensive that even the remarkable solution of building multi-storey flats for cars will work out much cheaper. This is of immense value to those concerned with trying to keep the shape of cities, even though it was probably carried out purely as a financial calculation. Apart from the destruction of existing buildings, and without envisaging anything on the American scale, indiscriminate street widening can only be a bad thing from the pedestrians' point of view. Apart from physical discomfort there seems to be a point beyond which a wide street becomes a definite psychological barrier (Piccadilly is just all right, Kingsway is too wide) which will kill the total life of the city by chopping it up into insular fragments. Occasional wide streets for special recognizable purposes like the Mall are quite another thing, and so is the idea of a ring road wide enough to mark the division between inner and outer city, as may happen at Birmingham.

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* Private cars are always assumed to be the nigger in the woodpile, and this is largely true. But a typical London street view, apart from the rush hour, is of half empty buses in convoys and completely empty taxis in ranks. Mr. Car-Owner is obviously not the only problem.

Now *laissez-faire* on the roads, however valid, is not something to be maintained in public. Public opinion, accustomed to our code of well-shod falsehood, might well boggle at such an unlikely thing as the truth presented *tout court*. If nothing constructive is done, urban motorways might become the key issue in the next election but two, and result in a vast programme of useless public works which will leave our city centres maimed.

But there is another way out, on the Mahomet-and-mountain principle. If changing the roads is impracticable, why not change the vehicle and the mechanism by which some of the blockages occur? The money we are proposing to spend on road works would be better split three ways—on improving the real bottlenecks, on research into gadgets to make the best use of existing roads and on research into completely new types of vehicle.

These in fact are the means for diverting the direction of public opinion so that by the time it realizes that nothing drastic is to be done about urban roads there will be so many alternatives that the resentment will be dissipated or eliminated. It sounds and is Machiavellian, but the issue is really psychological, not legal, and it does occur to me that this is perhaps what our senior civil servants, who are certainly not unsubtle, are trying to do. One example of what I mean is the parking meter. It certainly allows fewer cars to park in Mayfair, yet it demonstrably makes traffic flow easier and allows the legitimate man-about-town to park when he needs to. The man in the street or in the car will apparently accept this whether he enjoys the consequent advantages or not. He will surely accept any similar kind of change—one that is unequivocally aimed at cutting down the *total* amount of traffic and also at making circulation easier for what remains and for the pedestrians to whom the city really belongs anyway. One way systems, reverse flow systems (like the lanes on Chelsea Bridge), blocked streets, rearranged intersections have all scarcely been tried out at all, sometimes for lack of people with time enough to sit down and think them up. With millions of pounds being allocated semi-casually, this seems very shortsighted.

The next stage ought to be research into better control mechanisms, which is just that we are supposed to specialize in, with our computers and electronic brains: traffic lights for the main intersections which can assess exactly the approaching traffic from any given direction, linked to advance lights to give warning of an overloaded junction; 'no-waiting' streets with some form of burglar alarm (photoelectric?) set to go off after a parked car has been there ten minutes. They may all sound utopian and costly, but not as costly and as hopelessly utopian as an urban motorways programme.

But the greatest benefit can come from redesigning the vehicles which are the cause of all this bother, the first of our self-created robots to get out of hand, if you exclude organized false religion. This is happening naturally but not nearly quickly enough: scooters and bubble cars are here to stay but are only the beginning. Research properly directed could perfect the personal helicopter or ornithopter and could make the bubble car no bigger than a man, and collapsible. Self-drive taxis might be made out of some kind of clip-together unit which could seat one or two or four. Nobody can tell whether these things might work because nobody is doing the research—everyone is concerned with giving different names and genealogies to the various fancy dresses of standard four-seat saloon cars. We did it in the war on every kind of subject: we can surely scrape up enough cash in peacetime to solve just one problem.

At the same time if public transport is to play its full part in this pattern as it must do, another kind of research is needed—into the organization, rather than the means of transport. Put bluntly, London Transport and possibly several others are too big and hold a monopoly as of right, instead of as of results. The vehicle pattern, size, frequency of service and temperament of the driver on a no. 11 route are quite different from an outer London cross-service, and with the way 'organization men' are constituted I do not think that this can ever be adjusted in one mammoth company using one or two standard vehicles and paying a standard wage.

The organization of bus garages seems a long way from architecture and a civilized pattern of life in cities, though in fact the future efficiency or otherwise of London Transport is going to be vitally important to the future appearance of London—what brings the private car into the cities more than anything else is an inadequate and unobliging pattern of public transport: people don't like being slapped. What I am trying to say, with what may seem to be harebrained suggestions, is that American experience is rapidly showing us that building motorways is no solution to urban congestion, though at the moment it is an adequate solution for cross-country traffic. The true solution can only be found by adapting existing roads to make the best of existing traffic, and by diverting the enormous resources of time and money which run the risk of being shortly misspent on urban motorways to the other end of the problem entirely. If you can't change the roads, and you can't change the vehicle growth, then change the vehicle. It is not only an alternative way out; it is probably the only way out. Shortsightedness is relative; and to propose wholesale widenings and motorways to solve the problem for ten years at the cost of throwing city life into the abyss for good may be the most shortsighted step of all.

Facing page: 1, the teaching-block from the east; 2, from the north-east, showing the use of the sloping ground—see also east elevation at foot of this page.

This is the twenty-fifth school to be completed by Mr. Clarke-Hall and occupies a site adjoining that of the first school he completed, exactly twenty years previously, the Richmond High School for Girls. That school, the outcome of a competition organized by the *News Chronicle* in 1937, can claim to be the first of the modern schools for which Britain has achieved such a high reputation in the subsequent years. In particular, it pioneered the open type of plan, which the best school architects followed for several years after. The school illustrated here represents, in complete contrast, the alternative highly compact type of plan, which was likewise pioneered by Mr. Clarke-Hall in his school at Cranford, Middlesex, completed in 1953 and illustrated in the *Review* in June, 1954.

SCHOOL AT RICHMOND, YORKS.

ARCHITECTS | CLARKE-HALL AND SCORER

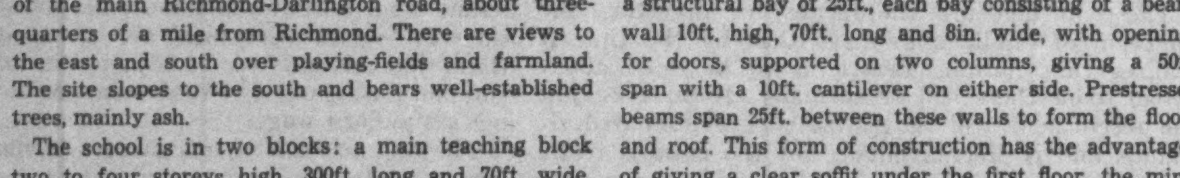
A four-form entry secondary modern school sited alongside the Richmond High School for Girls designed by the same architect in 1939. It is immediately south of the main Richmond-Darlington road, about three-quarters of a mile from Richmond. There are views to the east and south over playing-fields and farmland. The site slopes to the south and bears well-established trees, mainly ash.

The school is in two blocks: a main teaching block two to four storeys high, 300ft. long and 70ft. wide, running across the contours; and a single-storey workshop and laboratory block (also containing a greenhouse) on relatively flat ground to the west.

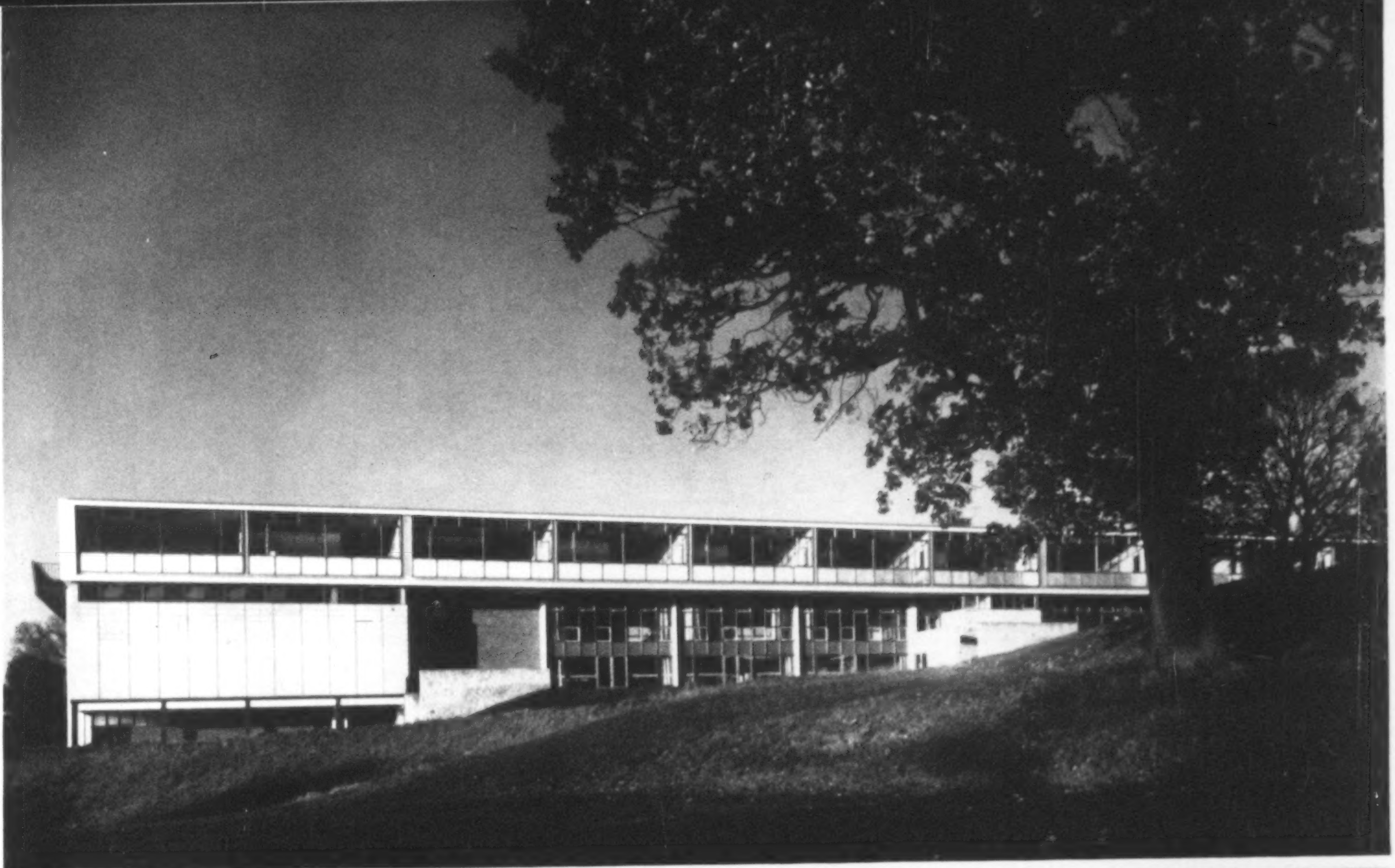
The upper floor of the teaching block contains 19 classrooms, two art-rooms and a library, arranged on either side of a central corridor with cloak bays off it. This floor is served by three staircases: one linking it with the main entrance and staff rooms, one linking it with the gymnasium, changing-rooms and the stage of the assembly-hall and one (the main central staircase) linking it with the pupils' entrance and the dining area and continuing to a lower level to the assembly-hall and the pupils' exit, which leads to the playground and the workshop block.

The staffrooms, cloakrooms and kitchen are at the north end of the block and the gymnasium at a lower level at the south end; between, at an intermediate level, are the dining-area and assembly-hall. The changing-rooms are in a basement beneath the gymnasium. Construction is in-situ reinforced concrete with a structural bay of 25ft., each bay consisting of a beam-wall 10ft. high, 70ft. long and 8in. wide, with openings for doors, supported on two columns, giving a 50ft. span with a 10ft. cantilever on either side. Prestressed beams span 25ft. between these walls to form the floors and roof. This form of construction has the advantages of giving a clear soffit under the first floor, the minimum of columns on the lower floor and a clear span of 50ft. for the assembly-hall. The structure for the last two bays at the gymnasium end is varied to give a large end window to the library above and to reverse the axis for the gymnasium.

External walls consist of honey-coloured random rubble stonework with 4½in. brick backing, dark blue-grey brick to the sides of the stage and exposed aggregate panels of a light terra-cotta colour to the gymnasium. Structural concrete is exposed, and panels below windows are of painted plywood, faced with ribbed glass. Each 25ft. structural bay has four such panels, three of which are blue and one red. For the red panels the ribbed glass is reversed (with the ribs on the outside) giving a variation in the light reflected. The soffit to the top floor is deep yellow. Internal structural concrete is exposed and painted.



east elevation



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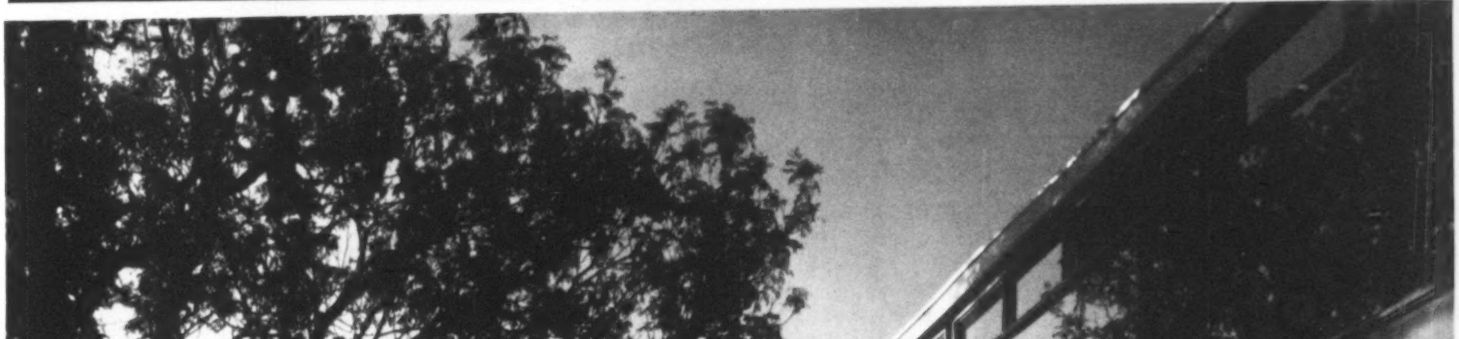

2

Facing page: 1, the teaching-block from the east; 2, from the north-east, showing the use of the sloping ground—see also east elevation at foot of this page.

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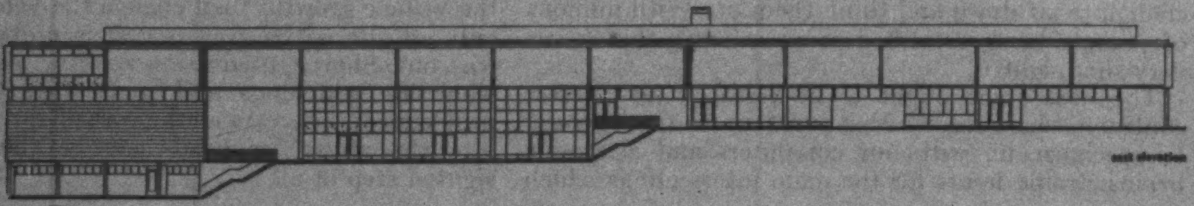
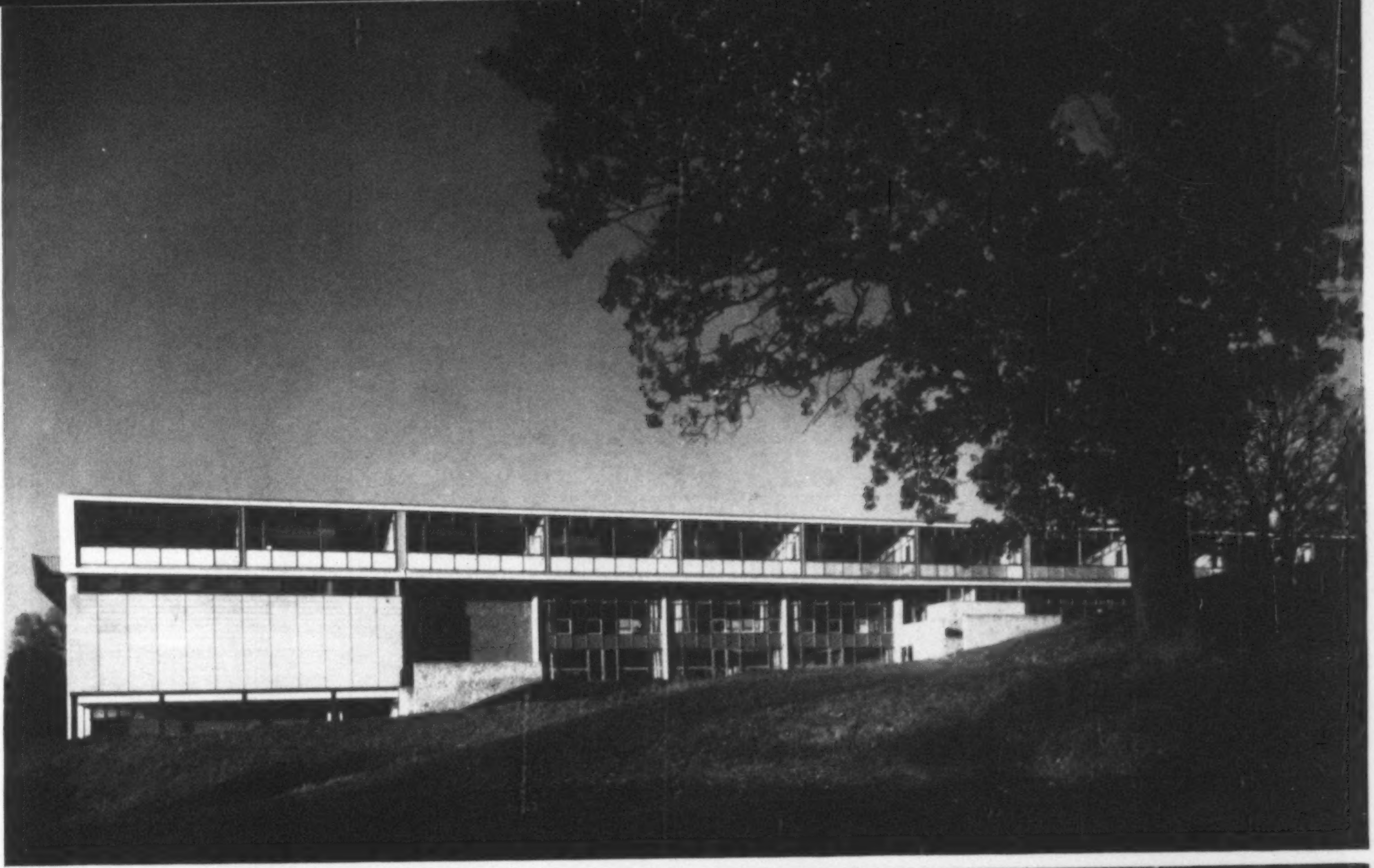


east elevation



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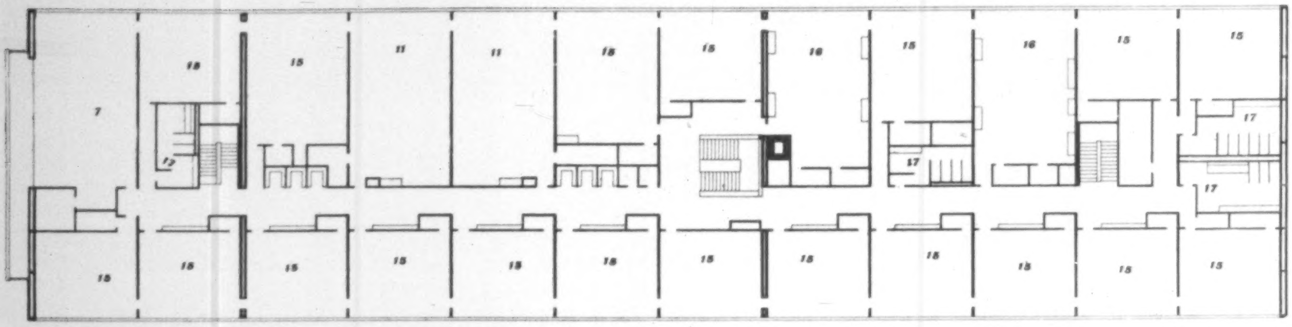
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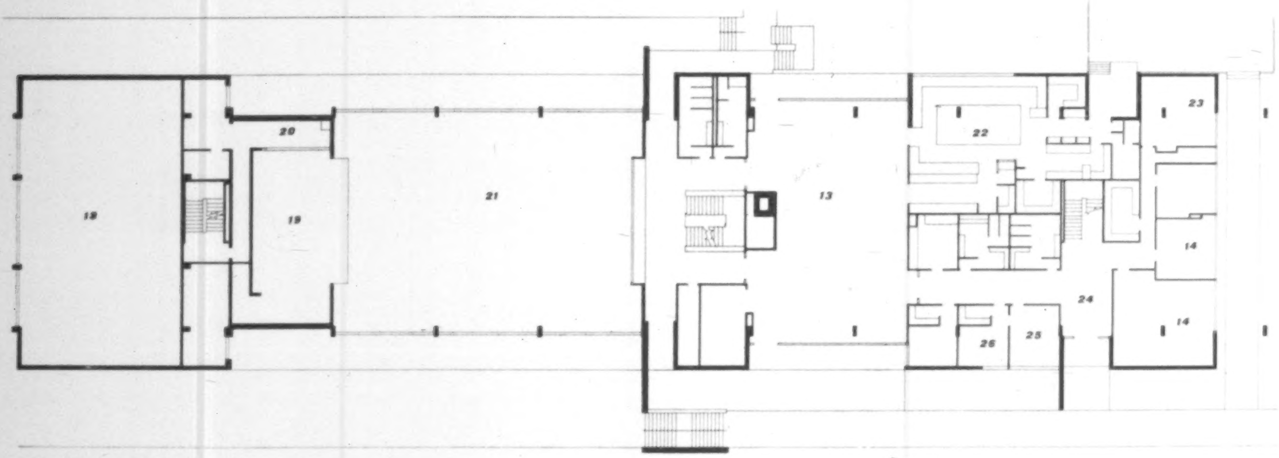
first floor plan of teaching block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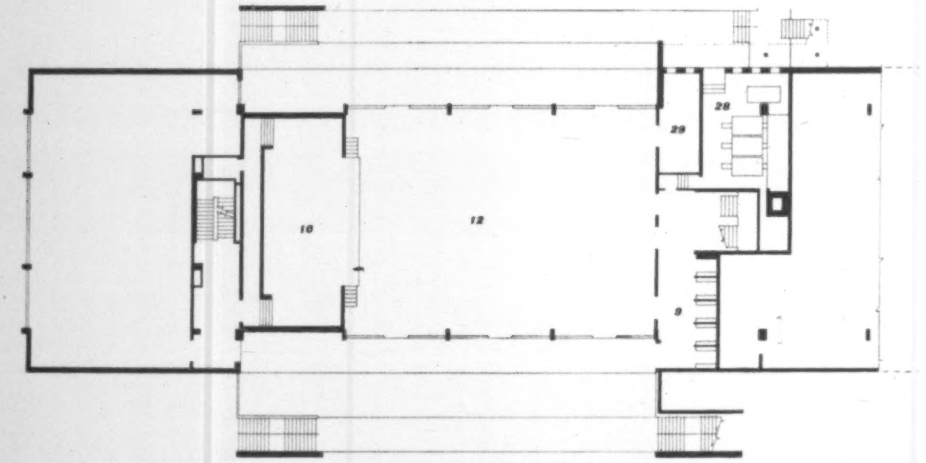
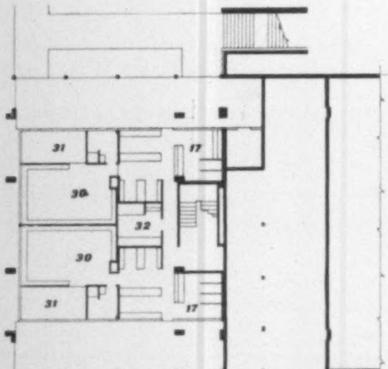
ground floor plan of teaching block



lower ground floor plan of teaching block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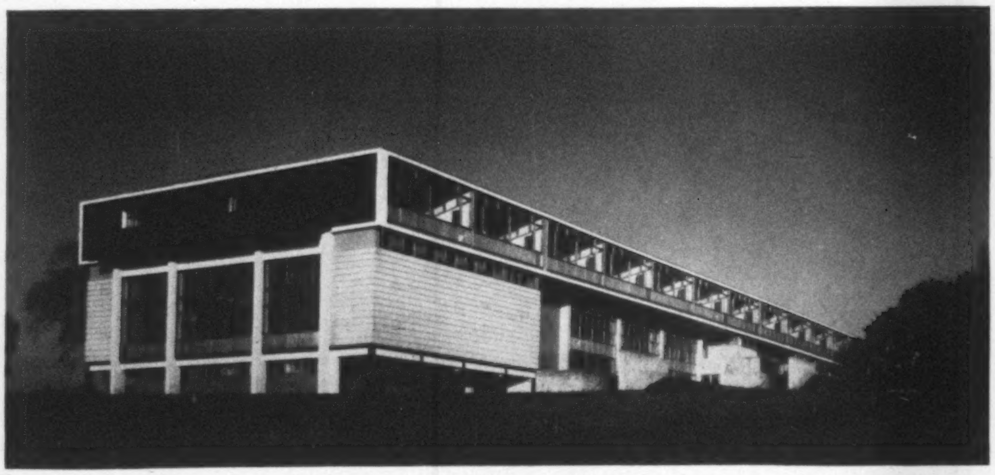
basement plan of teaching block

key
7, library.
9, cloakroom.
10, stage.
11, arts and crafts.
12, assembly hall.
13, dining hall.
14, staffroom.
15, classroom.
16, housecraft.
17, lavatory.
18, upper part of gymnasium.
19, upper part of stage.
20, lighting gallery.
21, upper part of assembly hall.
22, kitchen.
23, medical inspection.
24, entrance.
25, headmaster.
26, secretary.
28, boiler room.
29, chair store.
30, changing room.
31, showers.
32, laundry.

SCHOOL AT RICHMOND, YORKS.

3, from the south-east, showing gymnasium with large window facing south and changing-rooms beneath it.
4 (facing page), close-up of south-east corner of teaching-block. The exposed aggregate facing slabs are a light terra-cotta colour.



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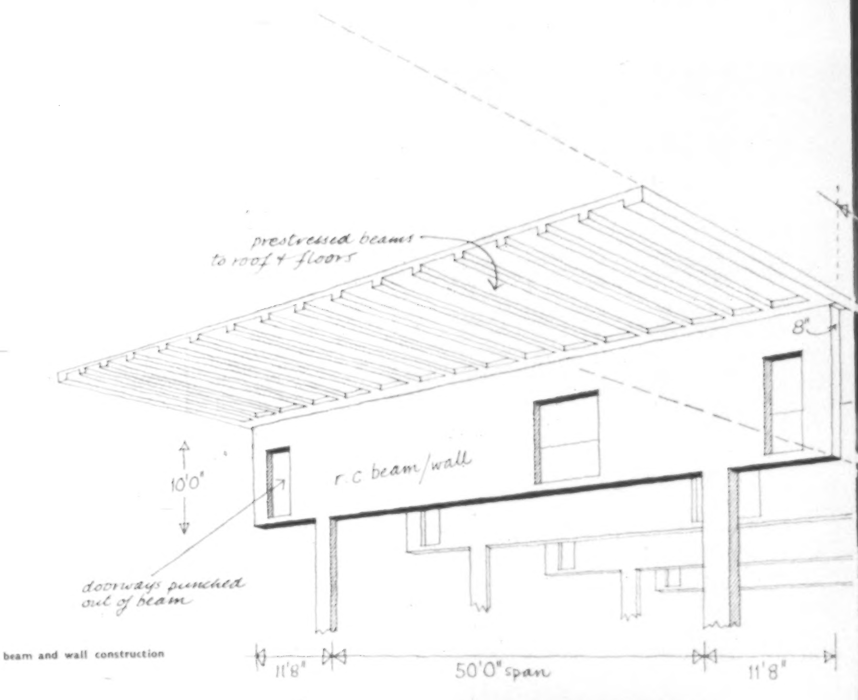
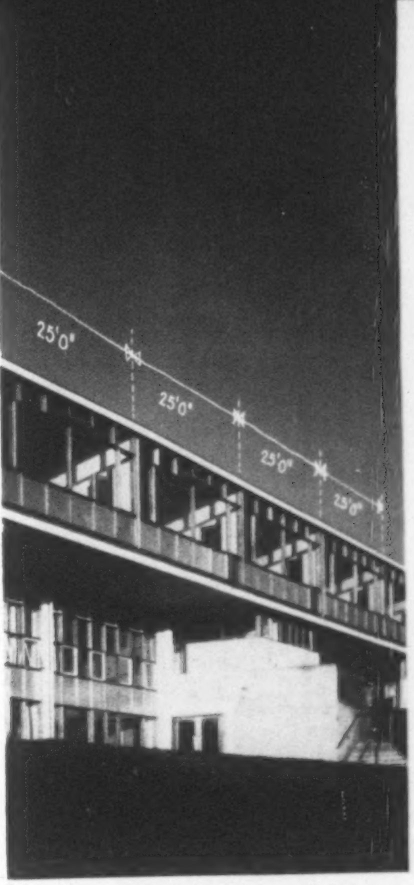
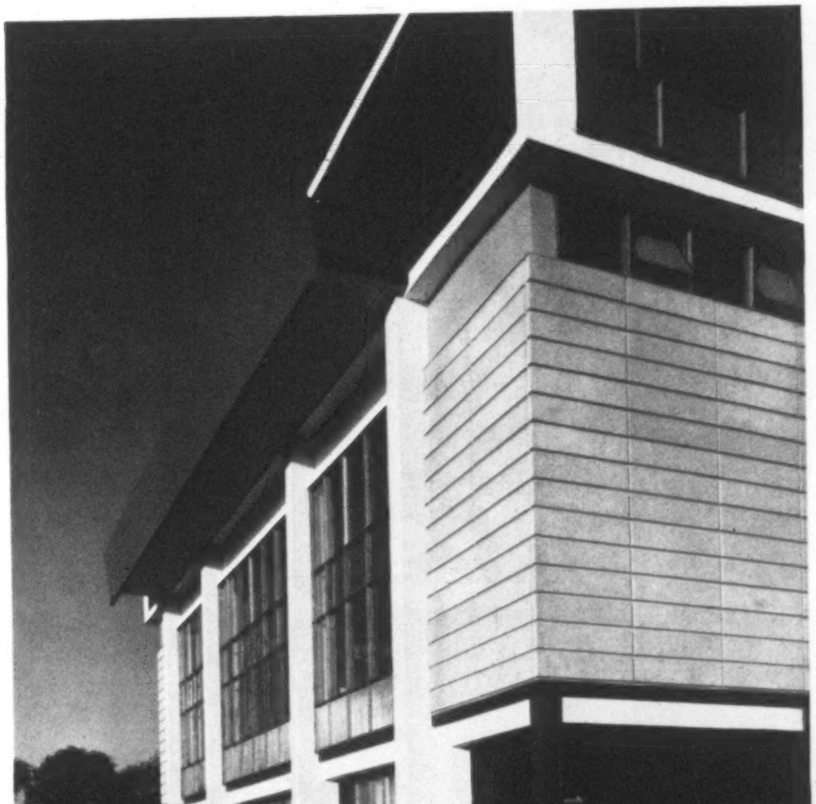

prestressed beams to roof + floors
8"
r.c beam/wall
10'0"
doorways punched out of beam
11'8"
50'0" span
11'8"

diagram showing beam and wall construction


25'0"
25'0"
25'0"
25'0"

5



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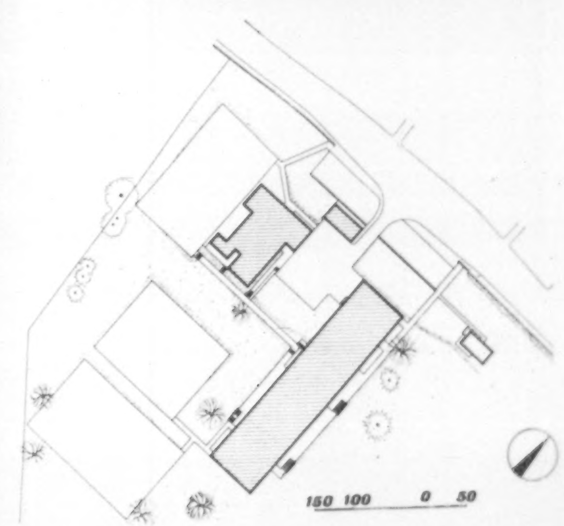
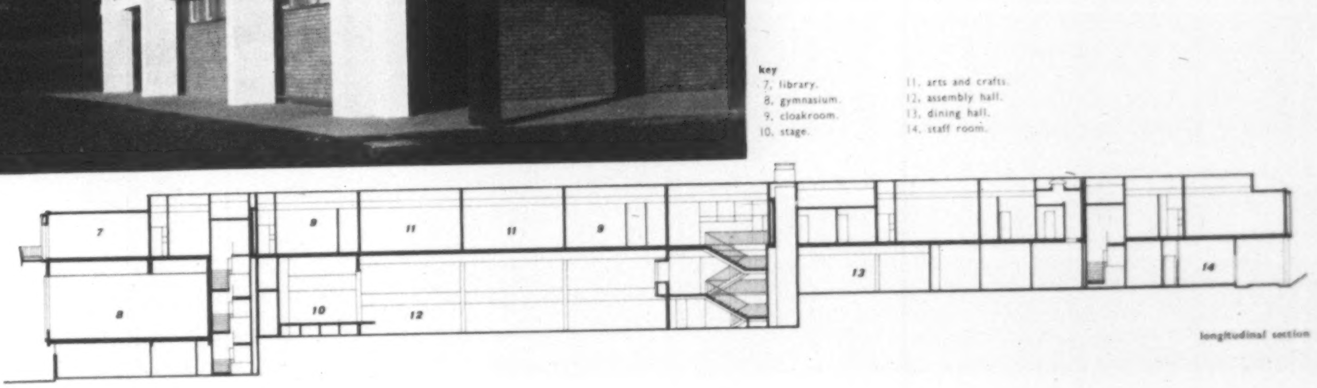


In the site plan above, the long block is the main teaching building illustrated on these pages; the square block behind it contains the workshops and laboratories and is illustrated on page 237. The ground slopes from north to south.

key

7, library.
8, gymnasium.
9, cloakroom.
10, stage.
11, arts and crafts.
12, assembly hall.
13, dining hall.
14, staff room.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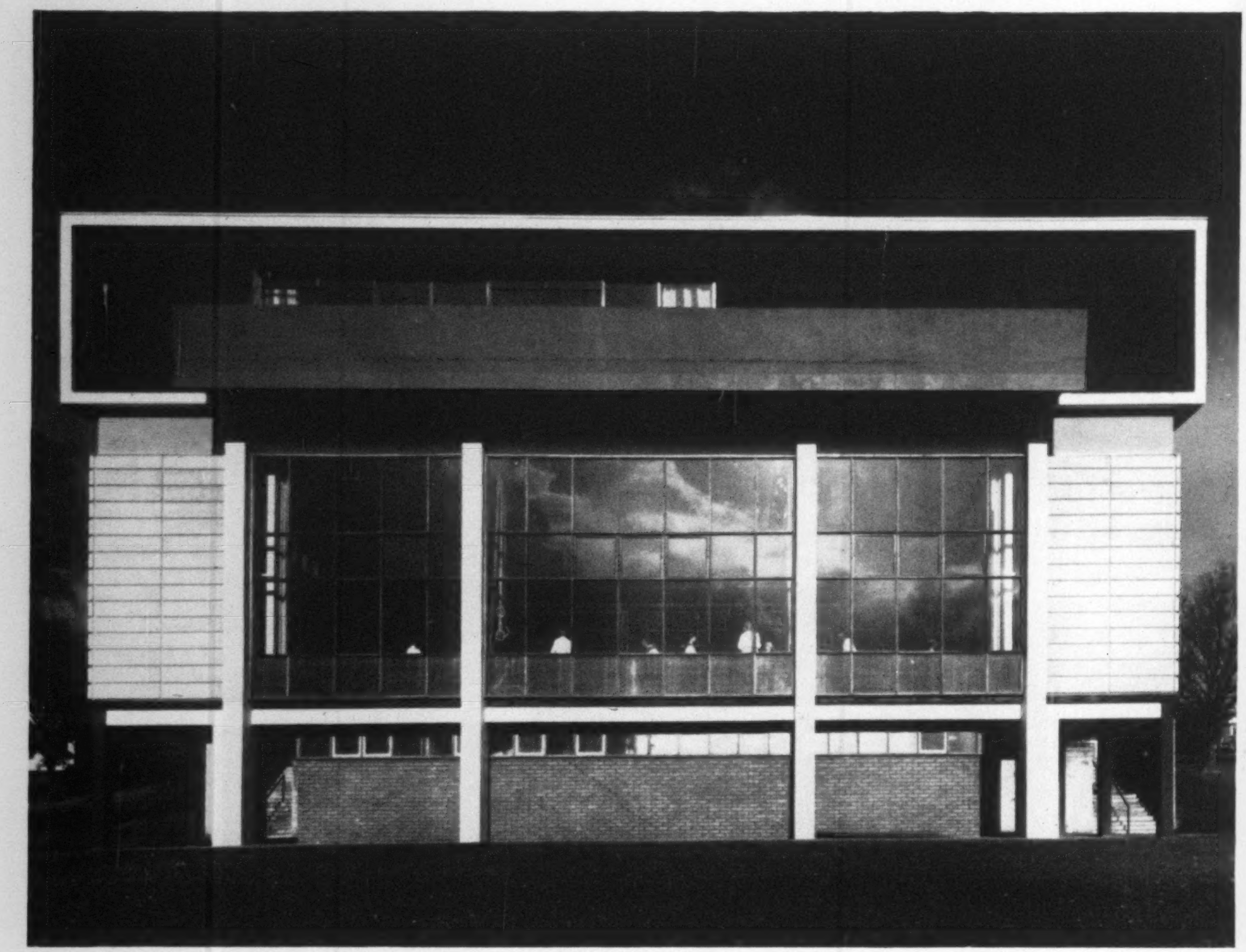
longitudinal section

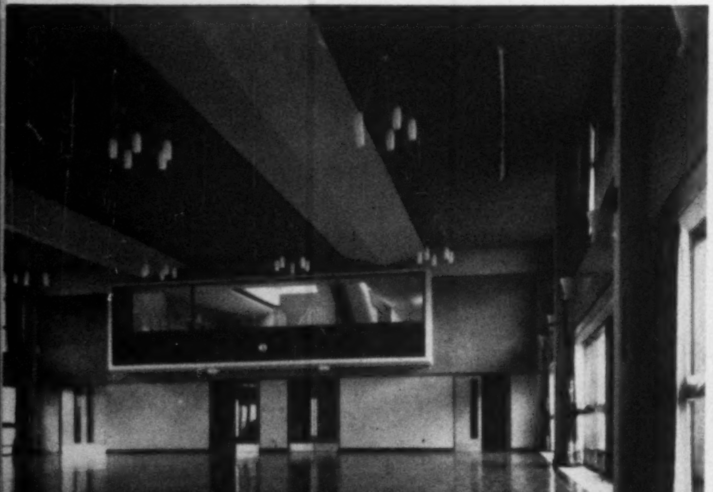


6

SCHOOL AT RICHMOND, YORKS.

6, south elevation, looking into the gymnasium window, with balcony outside first-floor library above it.
7, interior of assembly-hall, showing glass panels in end wall, giving view down into the hall from the staircase landing.
8, the other side of the glass panels shown in 7: the central staircase landing with view into assembly-hall.

7



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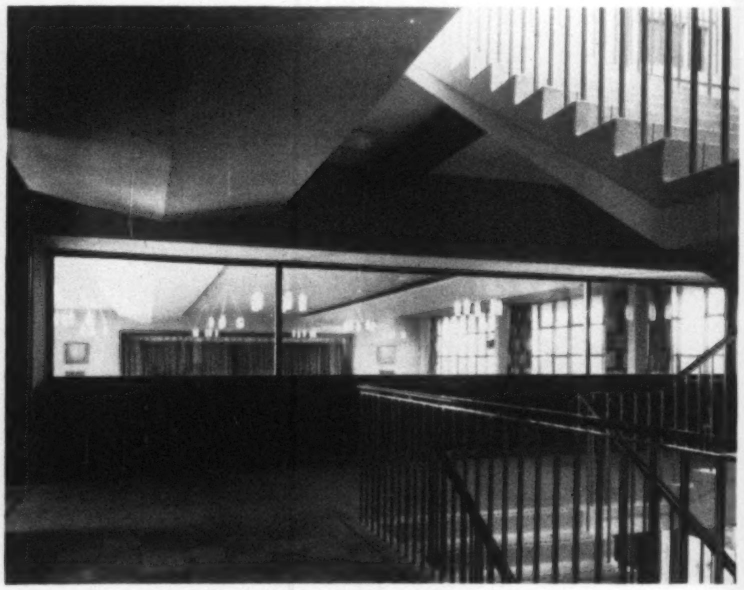

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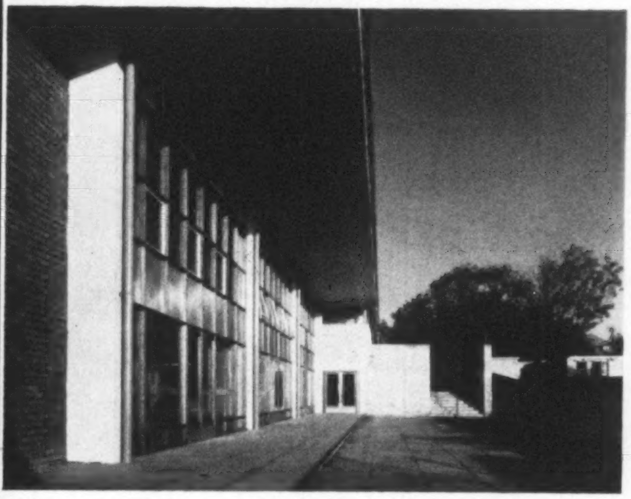
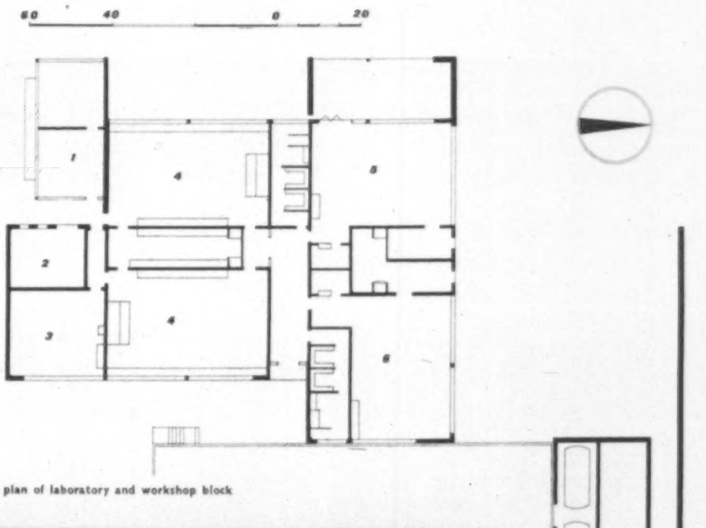
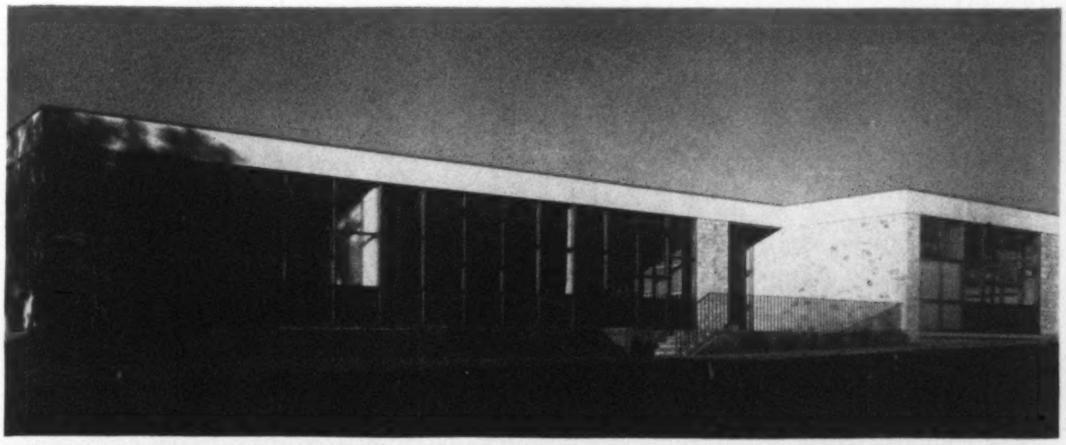


9, looking north along the east flank of the teaching-block, showing the overhang of the classroom floor. On the right of the picture, on the higher ground, is the caretaker's house—see also site-plan on preceding page.



plan of laboratory and workshop block

key
1, greenhouse.
2, tool shed.
3, potting shed.
4, science laboratory.
5, metalwork.
6, woodwork.



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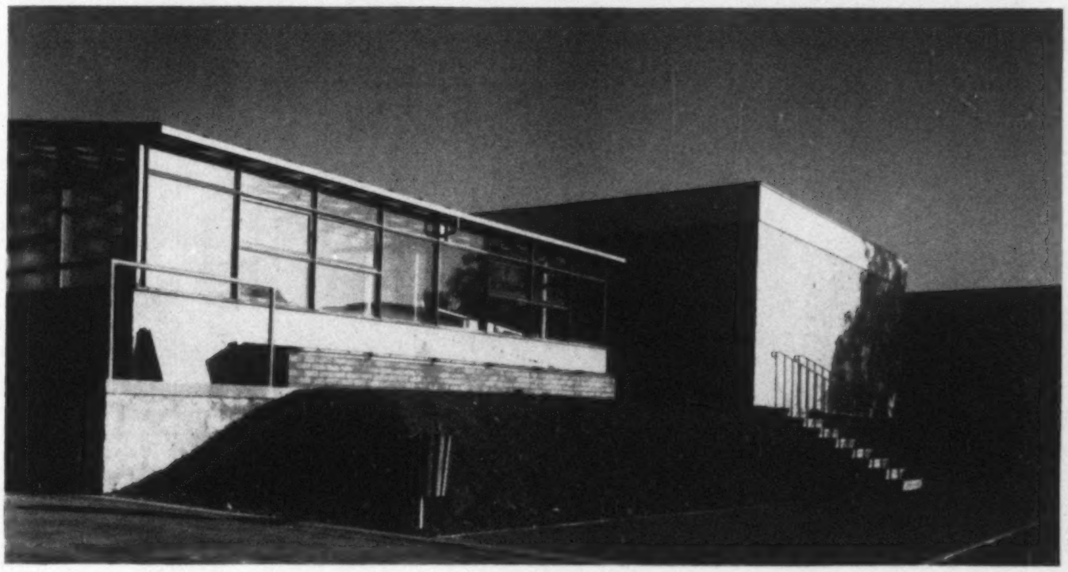
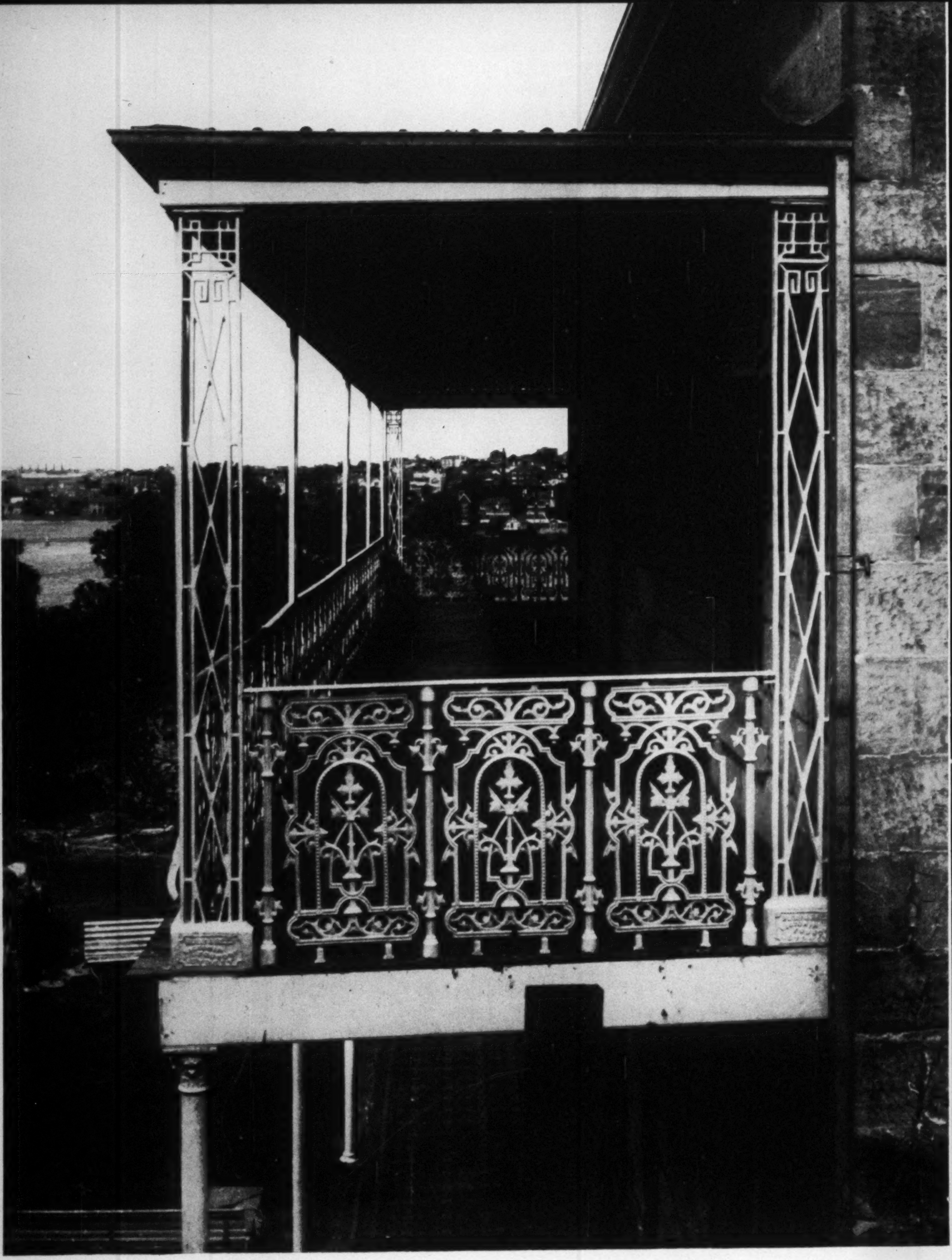


11

10, laboratory and workshop block from the east (that is, from the direction of the main teaching-block).
11, from the south, showing greenhouse wing on the left. The base and the laboratory walls are of honey-coloured stone.



1, cast iron verandah of an early house in Sydney, with roof supported by openwork panels, cast by Bubb and Rees in Chinese Chippendale style.

E. Graeme Robertson

THE AUSTRALIAN VERANDAH

The elaborate cast-iron frills embellishing the verandahs and other parts of late nineteenth-century houses are an Australian speciality that is far less well known than the equivalent ornamental ironwork of, for example, Louisiana. Yet in its way, especially in the state of Victoria, it is quite as remarkable and enjoyable. Dr. Graeme Robertson (a fellow of the Royal College of Physicians) has made a study of its history and patterns, and is the author of a book shortly to be published in Australia under the title 'Victorian Heritage: Ornamental Cast Iron in Architecture.' In the following article the results of Dr. Robertson's investigations are summarized, and a selection of his own superb photographs reproduced. The houses illustrated were built mostly between 1860 *and* 1890.

The first European settlement of New South Wales was made by Captain Arthur Phillip in 1788, its object being to receive prisoners sentenced to transportation for life. The first settlers lived under canvas, but within six months a number of huts, a cottage for the governor and a storehouse had been built*. The cottage, largely of canvas, was brought with the First Fleet from England; and a prefabricated hospital was erected.

For several decades, the housing built was of the crudest type, for a dearth of skilled workmen, of material, of means of manufacture, and of shipping from England were inseparable from an expanding colony in an inhospitable land so far from the mother country. However, the difficulties were gradually overcome; timber cut in saw pits and, later, brick and tiles made from local clay replaced the primitive vegetable materials. At some stage the first adaptation to climate appeared as a crude verandah to give shelter from the hot sun.

Conditions were hardly such as to induce successful architects or builders to leave countries where money, materials and demand for buildings were plentiful. Yet two architects arrived in Australia in 1813 and 1814. They had little lasting influence, and seemed to mishandle their opportunities, thus, perhaps, explaining why they left their homeland. So it came about that two others who arrived, as it were in the course of duty, played the greatest part in early Australian design. John Watts, as military architect, was responsible for a number of official buildings and by adding covered colonnaded verandahs to the symmetrical Georgian buildings, established a style which may be called Australian Early Colonial. However, Mr. Herman has pointed out that verandahs and wide eaves were an importation from the tropics, via England. Watts had spent some of his military service in the West Indies. The other architect, Francis Greenway, played a still greater part. He practised with his brothers in Bristol and Bath; but in 1811, when he was about thirty-four years of age, the firm became insolvent. In 1812, apparently to justify a claim

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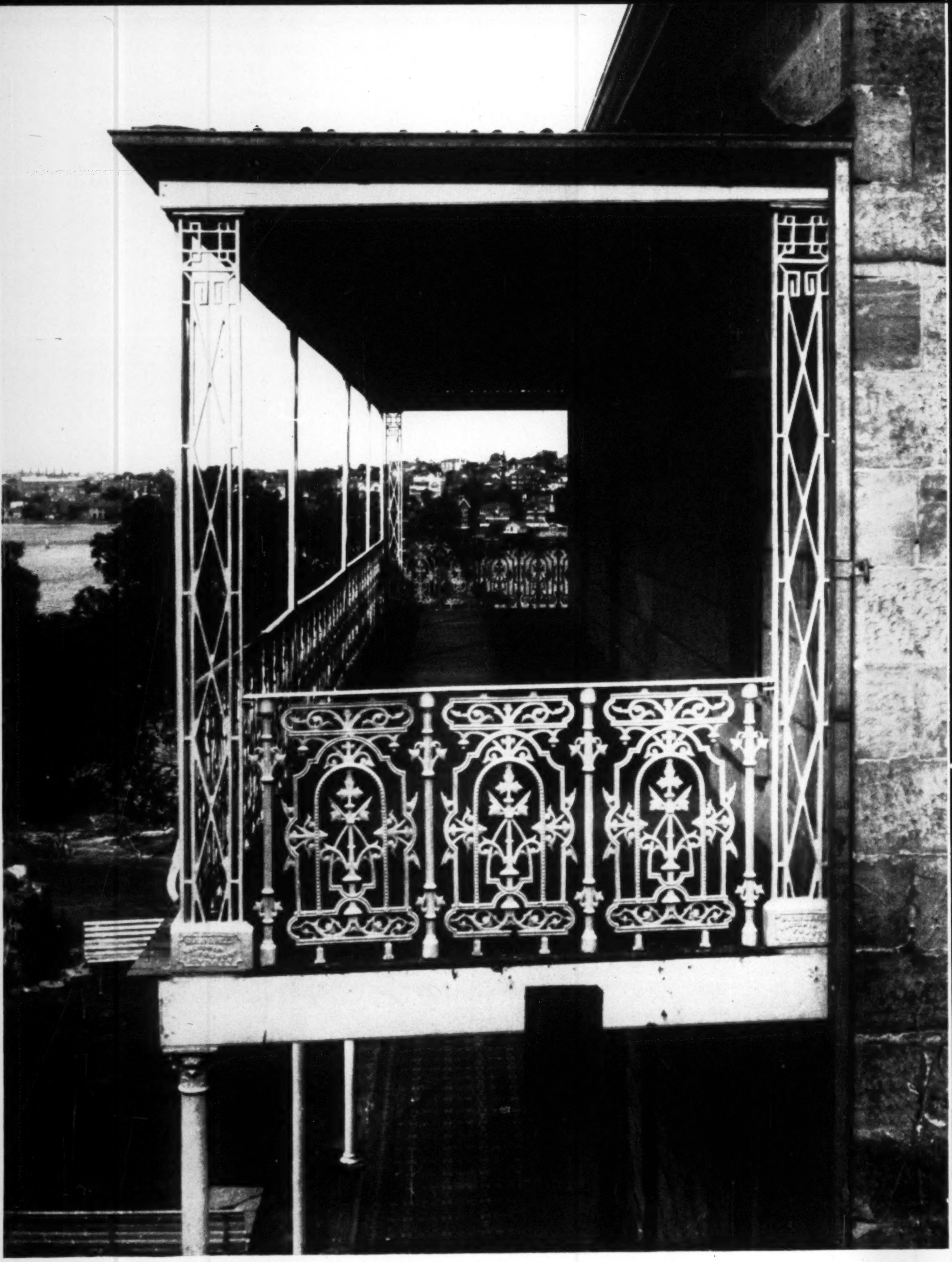
*In such a paper as this, only the briefest reference to the beginnings is relevant. The interest and accuracy of *Lachlan Macquarie* (Sydney, 1947) and *Francis Greenway* (Sydney, 1947) both by M. H. Ellis, and of *The Early Australian Architects and Their Work* (Sydney, 1954) by Morton Herman, will more than repay their perusal.



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E. Graeme Robertson

THE AUSTRALIAN VERANDAH

The elaborate cast-iron frills embellishing the verandahs and other parts of late nineteenth-century houses are an Australian speciality that is far less well known than the equivalent ornamental ironwork of, for example, Louisiana. Yet in its way, especially in the state of Victoria, it is quite as remarkable and enjoyable. Dr. Graeme Robertson (a fellow of the Royal College of Physicians) has made a study of its history and patterns, and is the author of a book shortly to be published in Australia under the title 'Victorian Heritage: Ornamental Cast Iron in Architecture.' In the following article the results of Dr. Robertson's investigations are summarized, and a selection of his own superb photographs reproduced. The houses illustrated were built mostly between 1860 *and* 1890.

The first European settlement of New South Wales was made by Captain Arthur Phillip in 1788, its object being to receive prisoners sentenced to transportation for life. The first settlers lived under canvas, but within six months a number of huts, a cottage for the governor and a storehouse had been built*. The cottage, largely of canvas, was brought with the First Fleet from England; and a prefabricated hospital was erected.

For several decades, the housing built was of the crudest type, for a dearth of skilled workmen, of material, of means of manufacture, and of shipping from England were inseparable from an expanding colony in an inhospitable land so far from the mother country. However, the difficulties were gradually overcome; timber cut in saw pits and, later, brick and tiles made from local clay replaced the primitive vegetable materials. At some stage the first adaptation to climate appeared as a crude verandah to give shelter from the hot sun.

Conditions were hardly such as to induce successful architects or builders to leave countries where money, materials and demand for buildings were plentiful. Yet two architects arrived in Australia in 1813 and 1814. They had little lasting influence, and seemed to mishandle their opportunities, thus, perhaps, explaining why they left their homeland. So it came about that two others who arrived, as it were in the course of duty, played the greatest part in early Australian design. John Watts, as military architect, was responsible for a number of official buildings and by adding covered colonnaded verandahs to the symmetrical Georgian buildings, established a style which may be called Australian Early Colonial. However, Mr. Herman has pointed out that verandahs and wide eaves were an importation from the tropics, via England. Watts had spent some of his military service in the West Indies. The other architect, Francis Greenway, played a still greater part. He practised with his brothers in Bristol and Bath; but in 1811, when he was about thirty-four years of age, the firm became insolvent. In 1812, apparently to justify a claim

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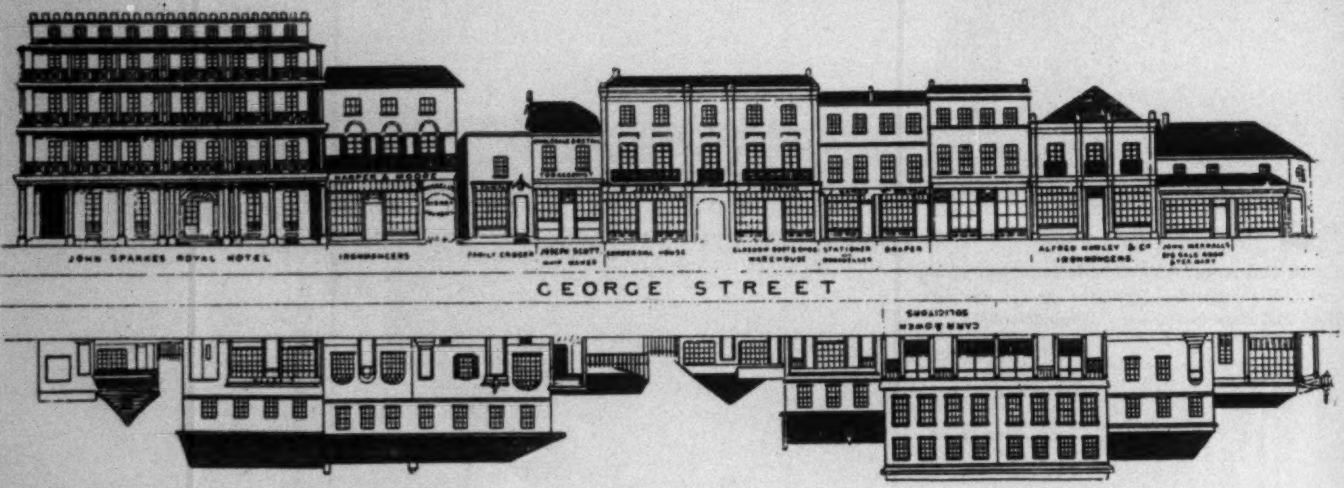
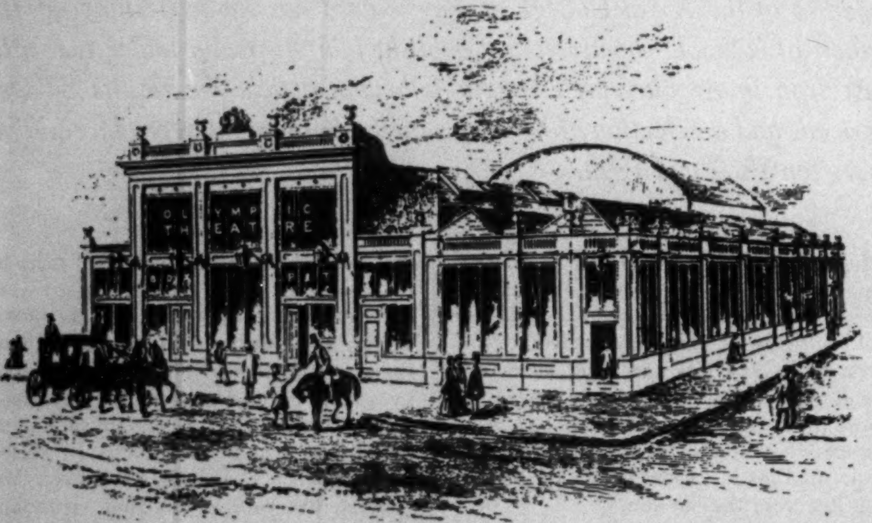
*In such a paper as this, only the briefest reference to the beginnings is relevant. The interest and accuracy of *Lachlan Macquarie* (Sydney, 1947) and *Francis Greenway* (Sydney, 1947) both by M. H. Ellis, and of *The Early Australian Architects and Their Work* (Sydney, 1954) by Morton Herman, will more than repay their perusal.



2, ***buildings in Sydney following the Georgian tradition, some embellished with verandahs, as delineated by Fowles in*** **1848.**

which he had made, and perhaps to right a wrong, he forged an 'instrument purporting to be an agreement between Colonel Richard Doolan and the said Francis Greenway,' in an attempt to establish a claim for £250 connected with his professional services and denied by the former. Had he succeeded, the money would have been seized by his creditors. Instead, he was arrested on a capital charge, to which he pleaded guilty, apparently thereby securing transportation for life. He arrived in New South Wales in February 1814, and afterwards, on ticket of leave, he designed buildings and drew up plans for the city for Governor Lachlan Macquarie, who visualized a destiny other than that of a penal settlement. Thus a Georgian tradition was established by early architects; and, at a humbler level, building remembered from home undoubtedly contributed to the dominance of this type of architecture.

By 1848, the streets of Sydney were lined by houses of Georgian symmetry and simplicity, so wondrously recorded by Fowles, 2. Some houses were of the unaltered tradition, others showed verandahs, such as Watts added to some of his military buildings; while yet others, influenced by the Regency period and the terrace houses of London, had first-floor balconies with ironwork balustrades. Many of these were unroofed, but in some instances a roof was added. Occasionally, a colonnaded verandah supports a balcony. The Royal Hotel, indeed, has four tiers. Thus Fowles illustrates stages of development of what was to become the most individual feature of Australian architecture; for cast-iron ornamentation was to assume a form unlike its origins. In Sydney, the cantilever roofed first-floor balcony was to become the most characteristic motif. It was broader and more substantial than its regency counterpart. However, varied usage of iron-work is another characteristic of Sydney.



3, ***Coppin's Olympic Theatre, Melbourne, a prefabricated iron building imported from Great Britain.***

The history of Melbourne begins in 1835, with the separate arrivals of Batman and Fawkner from Tasmania. The wide spaces available for grazing attracted settlers from the small mountainous island. The primitive hut stage was multiplied by the gold rush, which more than quadrupled the population of Victoria within five years. (By 1857 it had reached 410,766.) After the supply of gold had fallen, many stayed in the colony. Those whose fortunes had been bad had little opportunity but to remain as artisans and labourers, and the diligent amongst them soon needed comfortable cottages. Others, whose fortunes had prospered, and these were largely the merchants who had served the gold diggers, required larger houses. At first, there were too few trained persons to supply the demand, and prefabricated buildings were imported from Great Britain. Cottages were landed at the cost of £25 each, and sold at from £60 to £75. Two cottages of corrugated iron, with iron window frames and iron doors may still be seen in Argyll Street, Fitzroy. Larger houses, warehouses, theatres and churches were all imported intact. Coppins Theatre, 3, erected in 1855, was a complete portable theatre of iron, 88 feet in length, 44 feet wide and 24 feet high. Its cost was said to exceed £4,000. Messrs. Bellhouse undertook to have the complete shell of the building, the ornamental façade, and the principal framework of the interior on board ship in about thirty days from the date of the contract. It was erected in six weeks. Its exterior appearance was pleasant, while 'the interior of the theatre presents a light and exceedingly elegant appearance, and a true idea of its capacity is certainly not indicated by its exterior view.'* Such buildings followed the principles of Paxton's Crystal Palace and the speed of production and erection of the theatre is reminiscent of that of the far larger original building.

Portable iron churches for the colonies

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*See *Year Book of Facts*, London, 1855, and *The Australian Builder*, August 16, 1855.

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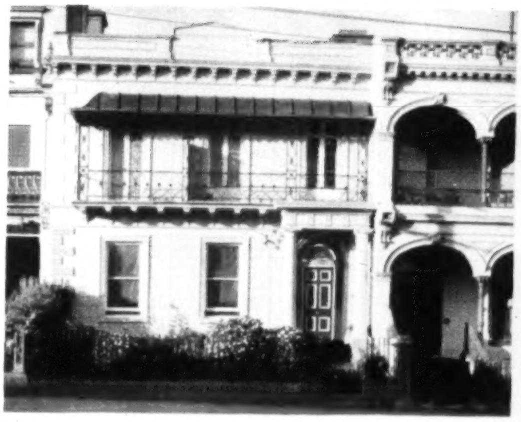

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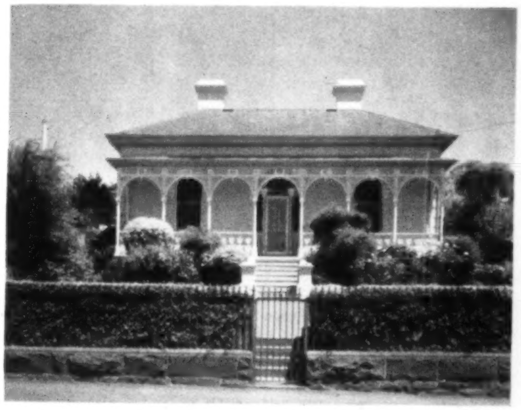

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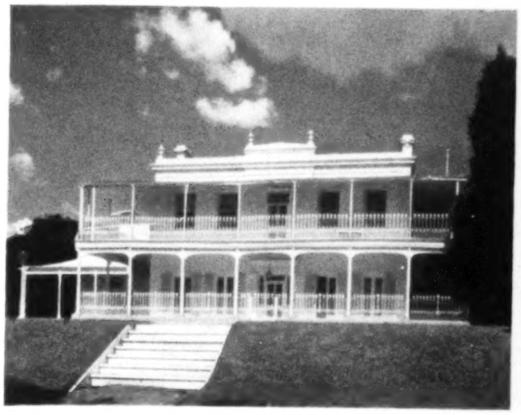

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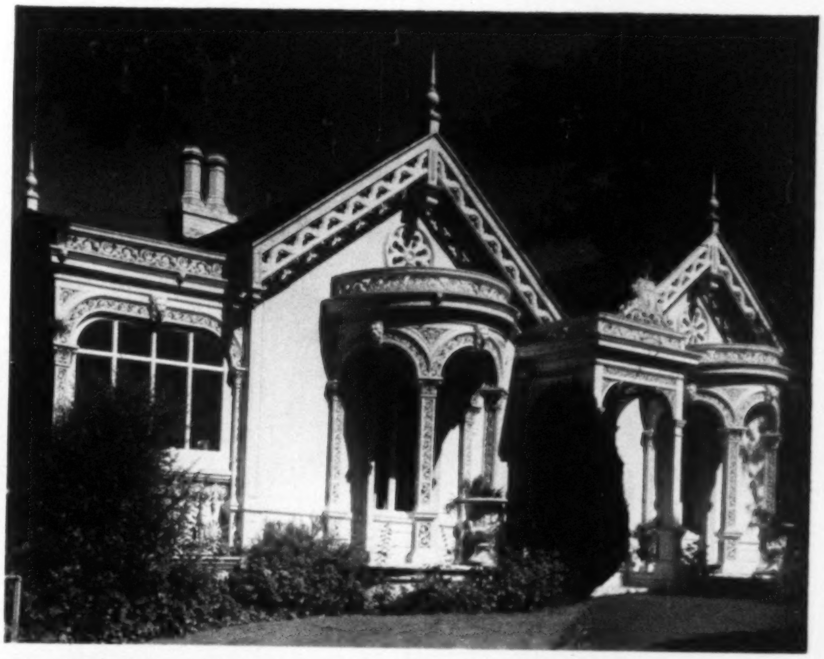

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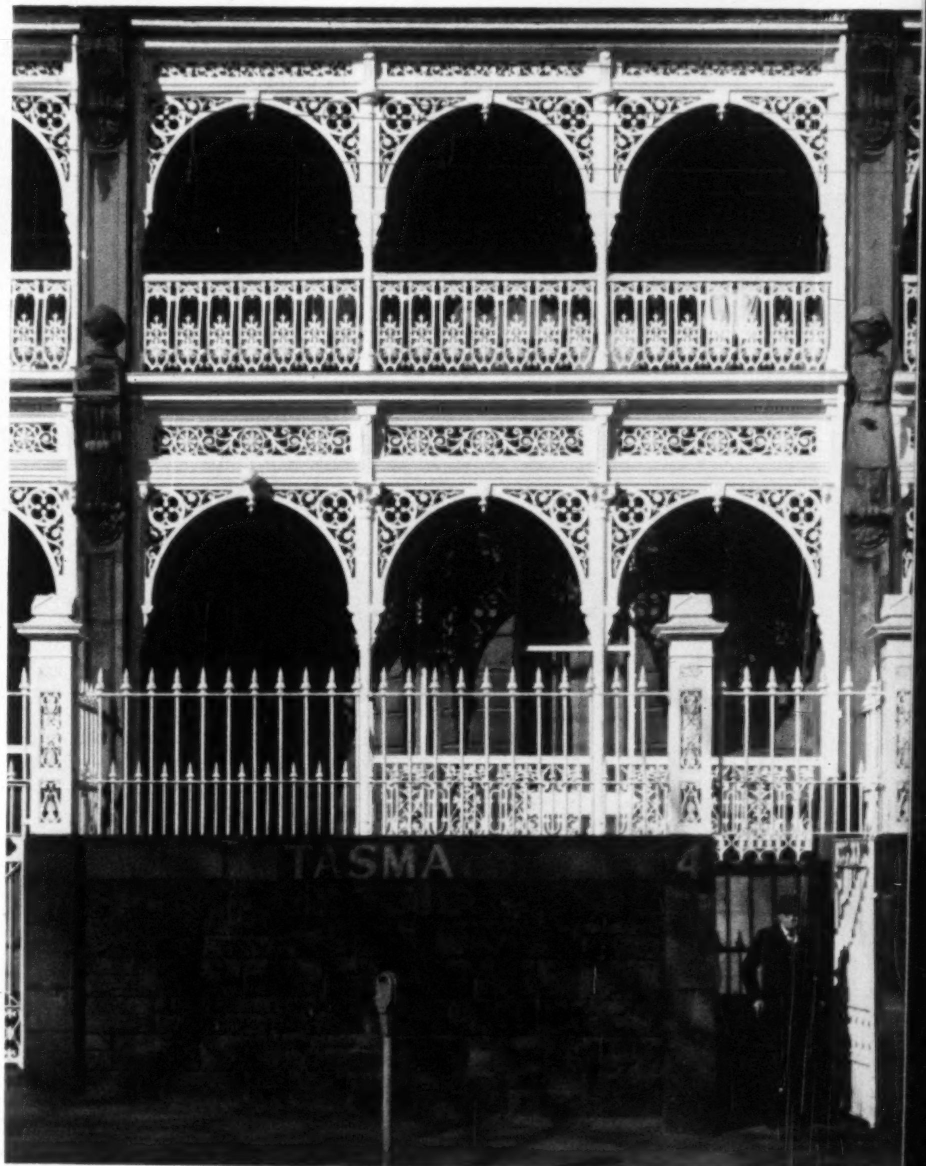

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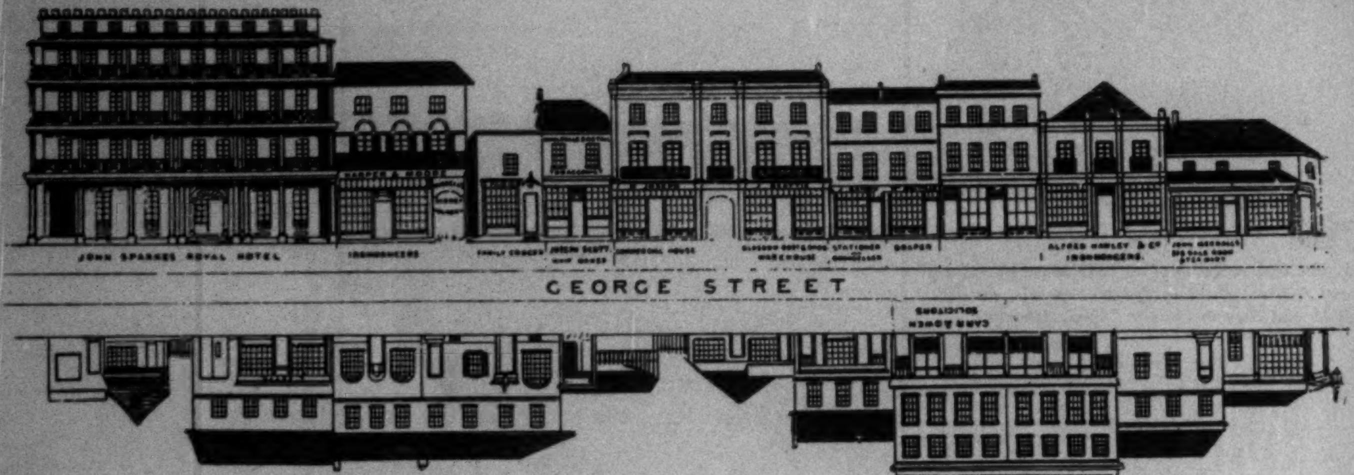
4, a covered verandah in Regency style in Victoria Parade, Melbourne. 5, house with cast-iron verandah across the whole of its front in Yarra Street, Hawthorn, Victoria. 6, 'Como,' South Yarra, Victoria, a house built in about 1859, to which a two-storey iron verandah was added somewhat later. The fence-like design of the balustrades is unusual. On the lower floor there is an ornamental head and a small openwork panel in the centre of each spread. 7, 'Corio Villa,' Geelong, an elaborate iron house, prefabricated in Scotland and landed at Geelong in 1855. 8, one of a sequence of seven terrace-houses, two of which have been demolished, in Parliament Place, Melbourne.



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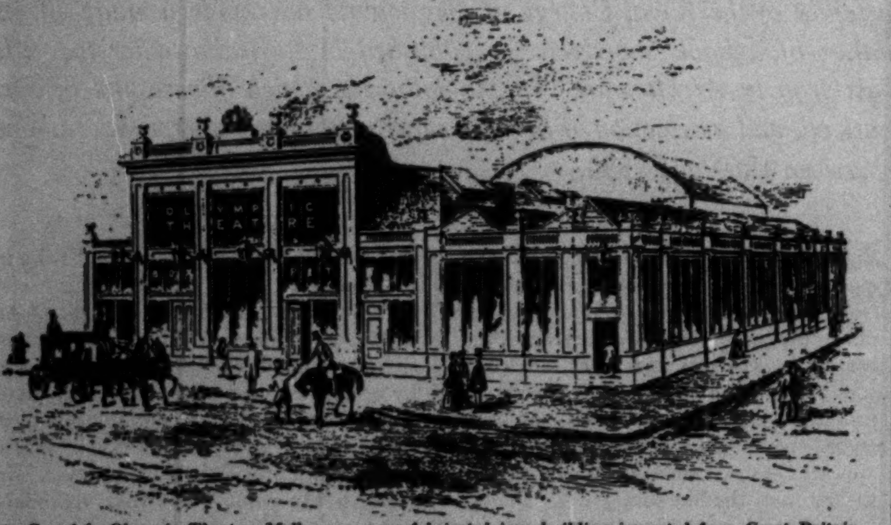

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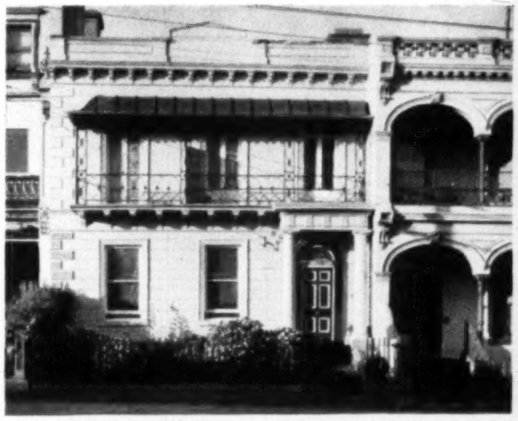

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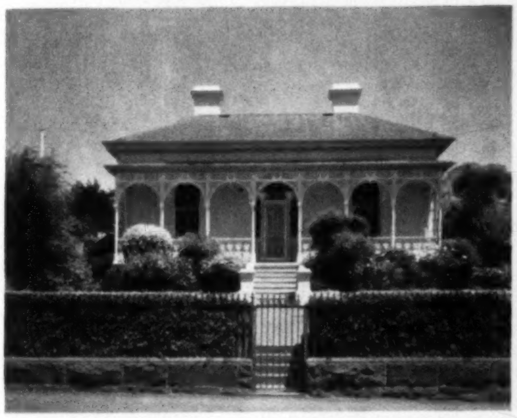

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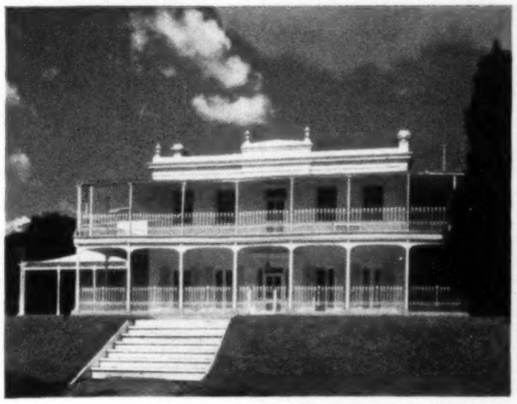

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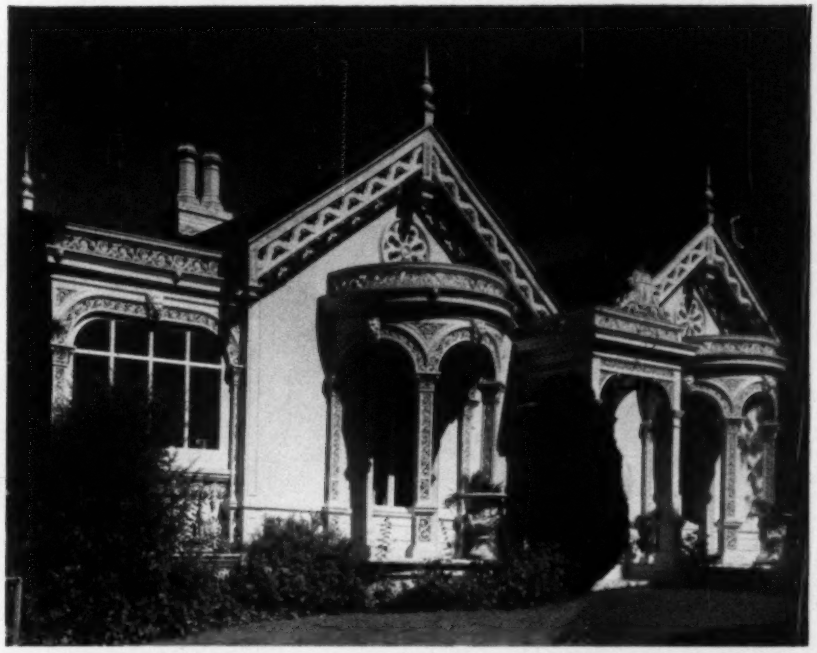

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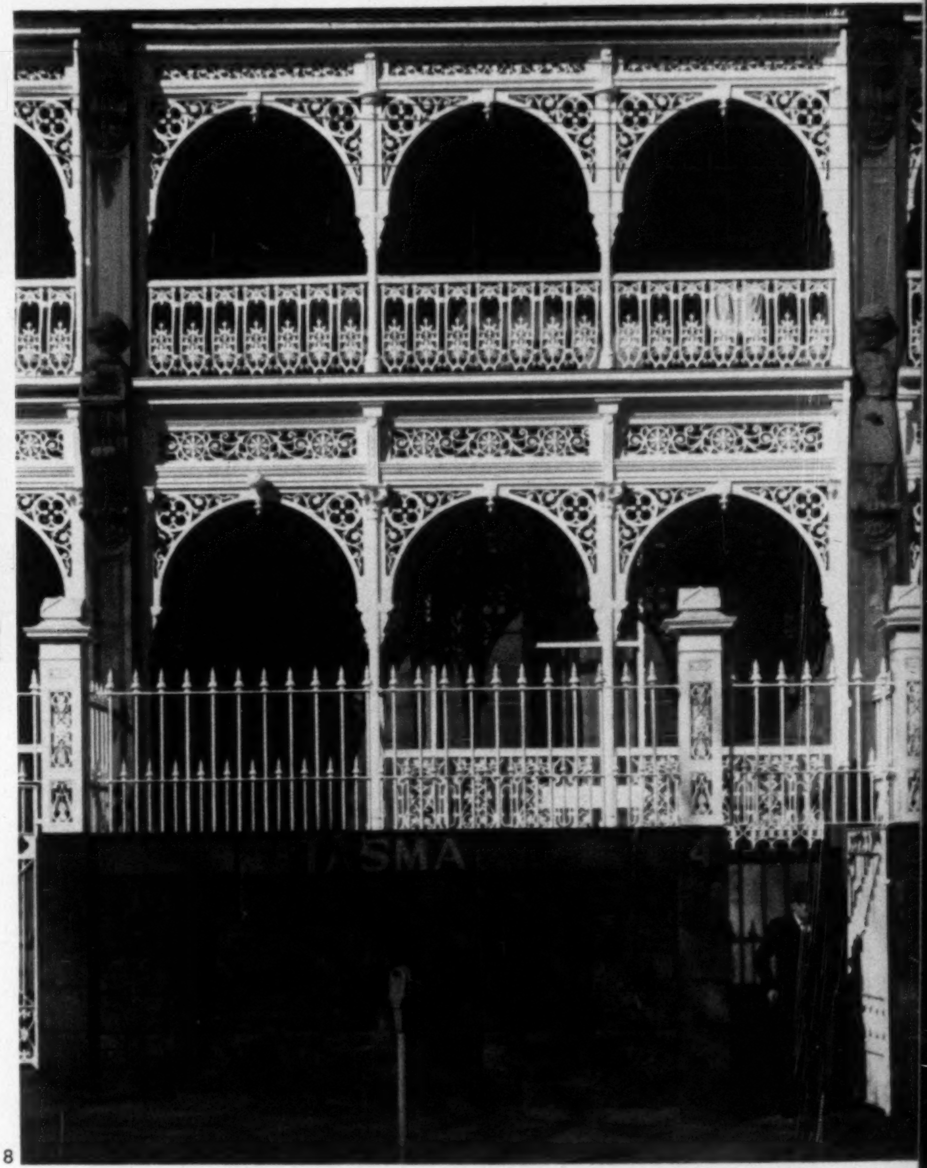

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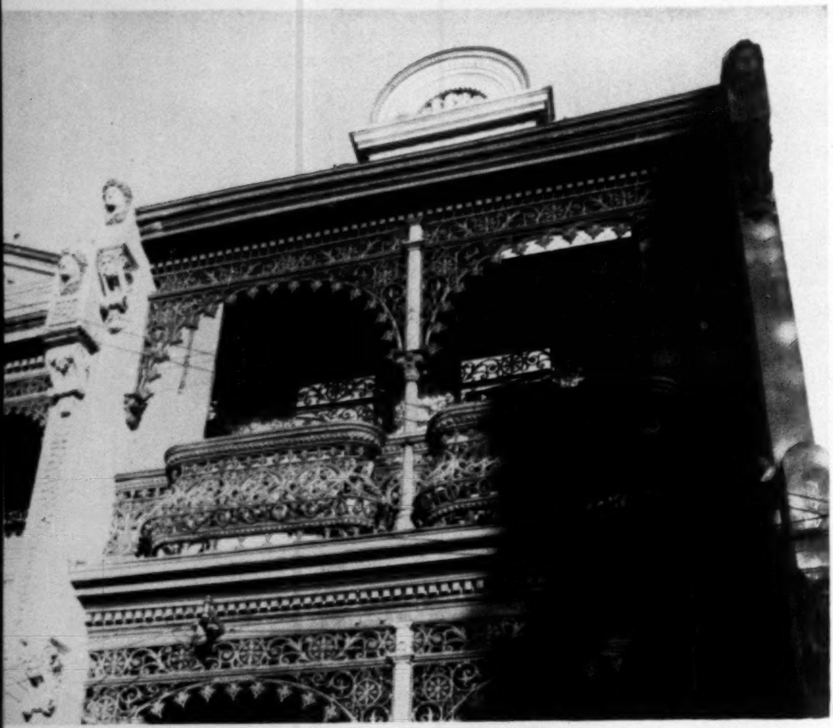

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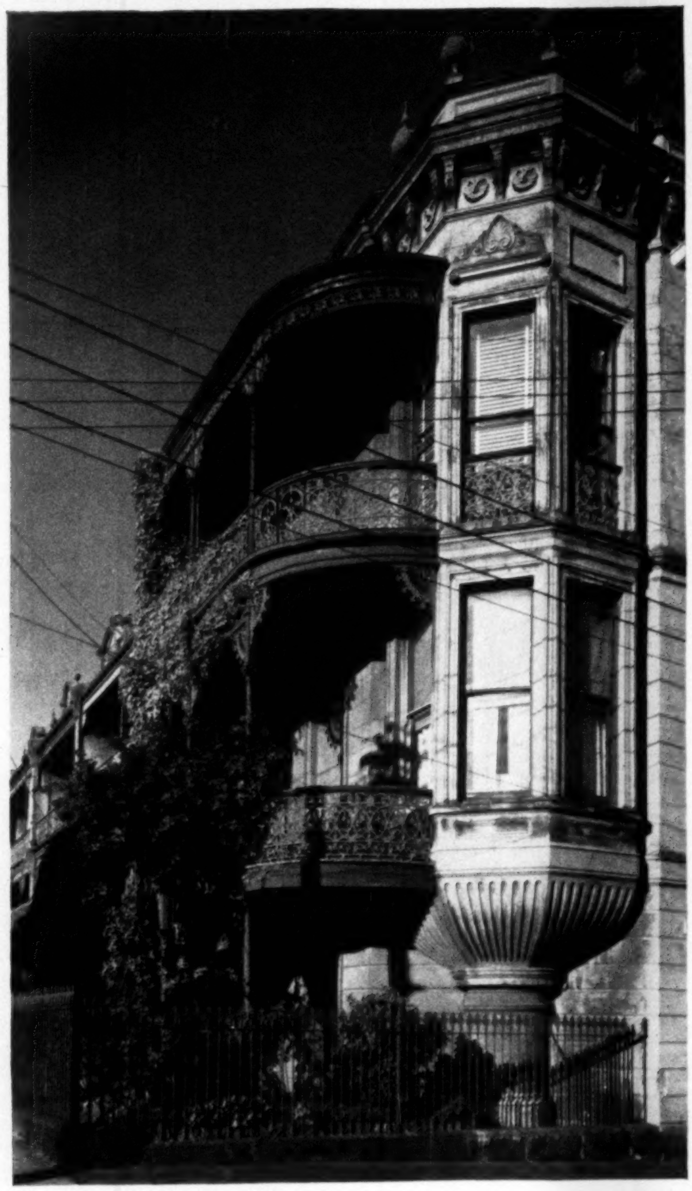

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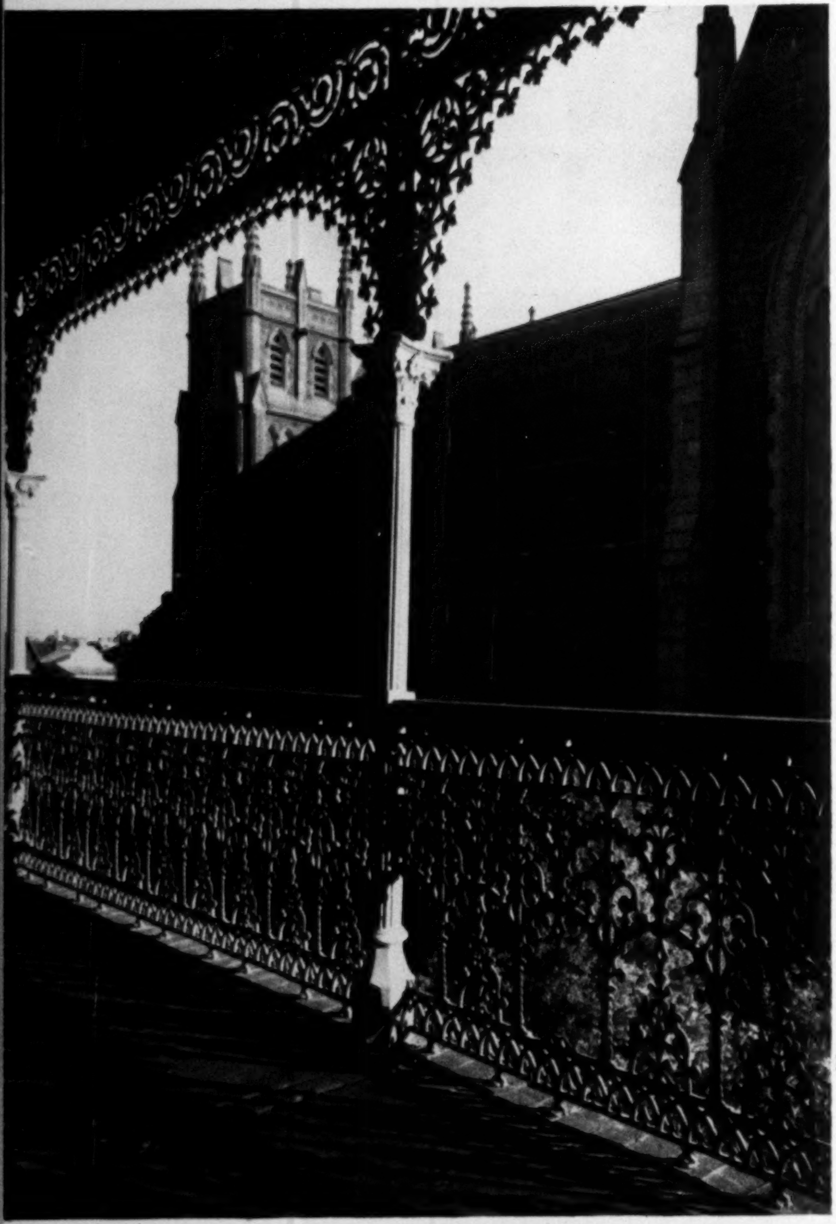

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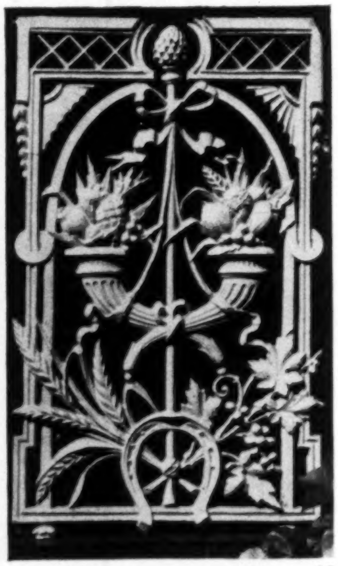

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9, an unusually elaborate example of the multi-storey verandah and balcony front. 10, the church of St. Mary of the Angels at Geelong, Victoria, seen from the verandah of the presbytery. 11, a terrace of houses with two-storey verandahs in Murphy Street, South Yarra. 12, detail of a baluster from a verandah front. It was designed and cast by Cochrane and Scott, and the design registered in Victoria in April, 1892.

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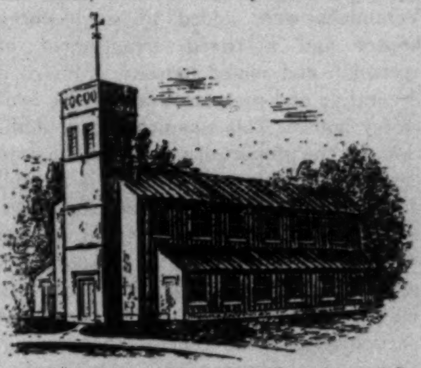
were made by a number of manufacturers, prominent amongst whom were Messrs. Hemming & Co. of the Clift-House Works, Bedminster, Bristol, 13. *The Illustrated London News* of April 30, 1853 states:

> *Portable Iron Church for the Diocese of Melbourne, South Australia*
>
> 'Nothing like iron' is one of the most practical 'modern instances.' The employment of iron may be traced through a long vista of ages; but it was reserved for our generation to produce the iron bridge, the iron road, the iron ship, and the iron house; and within the last few months towns of iron houses, to shelter the hordes of emigrants to newly-discovered lands of gold. A remarkable instance of the new manufacture, and its rapid extension, to meet the demands caused by the exodus to South Australia, has lately occurred in the city of Bristol, at Clift-house, Bedminster, where the stock of galvanized iron houses for emigrants has increased in a comparatively short time from a single model cottage to a sufficient number of dwellings in progress to form a little town; besides stores, villas, an hotel, parsonage-houses for missionaries; and, last of all, a church, which has been ordered by the right rev, the Lord Bishop of Melbourne, and which it is believed is only the first of several which will be sent out to supply the means of public worship to the diggers. The smallest house made is the 'cottage for the million.' It comprises two neat rooms, measuring 16 feet by 12, and can be purchased as low as 35 guineas. A house, in course of completion for the auditor of Melbourne, comprises four rooms, of 14 feet square, with an entrance-hall, closets, and a detached kitchen, and fitted with venetian blinds to every window, and a verandah running all round the villa. A parsonage-house has been made at a cost of 250 guineas, to the order of the Bishop of Melbourne; it contains a sitting-room, kitchen, servants' room, store-room, pantry, and four bed-rooms. The hotel or lodging-house is to comprise fourteen bed-rooms, so constructed as to divide into four compartments each, thus enabling the occupier to make up fifty-six beds.
>
> We have engraved the church which Mr. Hemming, the proprietor of Clift-house works, has just completed for the diocese of Melbourne. It comprises a nave, and two side aisles, with pulpit, reading-desk, baptistry, vestry, and a tower; the whole covering an area of seventy feet by forty-eight feet. The outside casing is entirely of galvanized corrugated iron; the inside walls being lined with half-inch boarding, canvas, and paper. The ceiling, under the roof, is of inodorous felt, also lined with canvas and paper. The church contains nearly 700 sittings, besides every fitting complete, for divine service; and the whole has been erected in five weeks, at a cost of £1,000.
>
> The Clift-house factory commenced with the proprietor's endeavour to make a light portable house for a son about to emigrate; and his success led to the present establishment, where hundreds of workmen are employed.

Three such churches were erected in Victoria, but they were not well received. George Goodman* wrote:

> Moreover, the colonists had ample reason for disliking these buildings. They are hot, ugly and perishable. The scorching sun draws the nails, curls the iron plates, and makes the interior as hot as a baker's oven. The style of architecture is hopelessly unpleasing, and such as suggests the factory or the warehouse. It cannot, therefore, excite surprise that one parish after another declined these corrugated makeshifts.

The Olympic Theatre had been dubbed 'the Iron Pot' by the populace. As the manufacturers had clearly designed their buildings for a colder climate, it is not surprising to find that the theatre and the churches have all been demolished.



13, portable iron church, made by Hemming and Co. of Bristol in 1853 and erected in Victoria.

A large prefabricated house, Corio Villa, remains at Geelong, 45 miles from Melbourne, in a perfect state of preservation, 7. The walls, window sashes, doors are all of iron, and adequate insulation was provided, for the house is most comfortable. The external decoration is elaborate and ornate, a little surprising since the house was made in Scotland. It was consigned to the port of Geelong, and unloaded in 1855. The packing cases lay unclaimed, and when enquiries were addressed to the makers, it was found that the foundry and all its records had been destroyed by fire. The owner was never traced. Eventually the iron was bought for a small sum and—an extraordinary feat—the complex building was erected without the aid of plans, for these had not been included.

Such an artificial means of supply was quite inadequate, and most building had to be done locally. It was natural that the style should be founded upon the houses which the settlers left behind. Most builders would be familiar with the simple cottage design, the nobler Georgian style, the Regency styles which were gaining ground, and the terraces of their home country. Literature and plans would illustrate current trends. However, the latter played a small part. The only typical Regency balcony appeared in Melbourne as late as 1902, 4. Styles established much earlier in Sydney would undoubtedly influence the architecture and the use of iron-work in Melbourne. However, communication between the two towns was poor, and remembered styles from outside Australia probably predominated.

Ornamentation by iron-work was remembered by local builders and fostered by British manufacturers. The earliest iron-work was imported from Great Britain, and later it served as an example to local manufacture. It is said that sailing ships, requiring ballast for the outward journey, carried this weighty material very cheaply. Large quantities were imported. One pattern, common in Melbourne, may also be found in profusion around Walton Street in Kensington. This design is from a catalogue issued by McDowall, Steven & Co. of Glasgow, a firm which exhibited in the Melbourne International Exhibition of 1880. It dates, however, in all probability from before 1860.

With the demand for houses which occurred with the expansion of Melbourne after the gold rush, local foundries began to produce decorative cast iron. Such letters as the following showed pride in the city of adoption, and perhaps business acumen as well.

In the *Australian Builder and Railway Chronical* of July 23, 1856, that hardy correspondent VERITAS writes, with the utmost frankness.

> The New Gas Lamps
>
> (To the Editor of the AUSTRALIAN BUILDER)
>
> Sir,—My attention has been drawn to several huge, rough, rugged pieces of cast iron springing out of the footpath curbstones of Melbourne, said to be the long looked for city lamp posts. Now, Mr. Editor, my object is not to cavil about trifles, for had the above named articles had the least spark of beauty about them, not a drop of ink from my pen should have stained their memory, but I cannot in this instance look coolly on without expressing my indignation, by saying, that the corporation of Melbourne, including their whole staff of practical scientific satellites, must have utterly yielded up their intellects when they sanctioned the abortions, now erecting in our streets, to be exported from the mother country; for my own part I have no hesitation in saying, that a more disgraceful design for a lamp-post, to say nothing of the rough casting, has never been perpetrated, and I am confident that a far better article as regards design and workmanship could easily have been obtainable in any of the Melbourne foundries, and, if I am not mistaken, at nearly the same cost.
>
> Trusting you will, in your valuable paper, give insertion to the above remarks.
>
> I am, Sir, &c., VERITAS
>
> P.S. Is it true that one-third of the pipes were fractured on the voyage?

The first advertisement for ornamental castings to be found appeared in the *Australian Builder and Practical Mechanic* (Melbourne) on June 12, 1856.

> To Contractors and Others.—Girders, cantilevers, ornamental railings, and corner pieces, bevil, and other wheels, pinions, and furnace bars. Quartz stampers, from 2½ cwt. each. All other castings to patterns or drawings, brasses, turning, and boring, at moderate prices.
>
> SCOTT, CLOW, and PREBBLE, Richmond Foundry, near the Admiral Napier.

Soon it came about that many foundries produced castings to supply the local needs. Records have been found of one hundred and six foundries which produced ornamental castings, and undoubtedly many more existed, even away from the large cities; for example, there is a band-stand in the now quiet country town of

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**The Church in Victoria during the Episcopate of the Right Reverend Charles Perry*, Melbourne, 1892.

Maryborough, the castings of which bear the legend Robinson's Soho Foundry, Maryborough. This town was once a very important centre of a gold mining region. Many designs were registered for copyright purposes, and recorded photographically, the records being stored at Canberra after federation of the colonies of Australia. Thirty-two Victorian foundries registered 118 designs between the years 1870 and 1900, while twenty foundries registered designs in New South Wales over the same period.

Balustrades, columns, friezes and brackets, fringes, crestings, spandrils and fences were produced freely by the local manufacturers. The designs for imported balustrades were largely geometric, but the Australian designs soon became more florid. All sorts of motifs were incorporated, ranging from stylized flowers to copies of Adam patterns. When examined closely the patterns may seem complex, but the passer-by rarely analyzes them. A baluster embodying symbols of good fortune is shown in 12. Others incorporate indigenous fauna such as the silver-crested cockatoo, registered as a design in New South Wales in 1880. The columns used in Melbourne are usually round, and provided with a modified Corinthian capital, of stereotyped design. Only one example of an openwork column has been seen in Melbourne, that illustrated on the cover of this issue, though openwork columns, true to the Englith style, are common in Sydney—an example is 1, page 238.

To return now to the house which is ornamented by iron work, styles were necessarily modified by memory and were often quite inconsistent. The prevalent Victorian influences from England probably played a greater part than local copying. Few large houses of Georgian elegance are to be found in Melbourne, all the more remarkable since such houses abound in Tasmania. Fashion, rather than form, had the dominant influence. Yet, shed of all decorative material, the façade and design of the Melbourne house were simple and quadrangular. Heavy Victorian forms replaced the delicate Georgian woodwork of fanlights, doors and windows.

The smallest houses were single-fronted, with a narrow verandah, decorated only with a cast frieze, and separated from the street by an iron fence of stereotyped design. Often a narrow strip of garden intervened between verandah and fence. Basements were uncommon. In larger and later houses a certain flamboyance was likely to appear in the work of the untrained designer, and a desire for it existed in the newly enriched member of the community. Hence, houses of basically simple proportions were given towering ornamental parapets, lacking in function, and often an aesthetic encumbrance. By serving as a target for the symbols of the classical and romantic revivals, however, the parapets perhaps preserved the dignity of the house itself. Urns, shells, Egyptian and classical motifs, decorate the only parts of the exterior which were not ornamented by the iron-work, 9.

This desire for ornamentation, and the need for adapting the house to the hot summer climate, resulted in a domestic style prevalent between 1860 and 1890. Verandahs were added to single-storey houses and a tiered arrangement of verandah and roofed balcony provided a decorative and protective 'apron' for two-storey houses. This was not a mere addition, for the proportions of the façade were designed for this structure (as is so well demonstrated when a desire for 'modernization' prompts its removal) and it was 'functional.' It served as a porch, a modifier of climatic conditions and provided for outdoor living, to be appreciated particularly in the cool of the evening. However, the verandahs were applied irrespective of aspect. Even in Tasmania, with its colder climate, the country houses faced south, a habit ingrained in England. A roofed verandah is an excellent feature when the house faces north, since it excludes the high midday sun of summer, but allows the low winter sun access to the windows. The westerly balcony affords shelter from the early afternoon sun of summer. The evening and morning sunlight enters the westerly and easterly windows, whether there is a balcony or not. However, applied to the south, a verandah merely darkened the rooms, though perhaps it might be useful for outdoor living on some hot days. It follows that the colder the climate, the less useful were these roofed structures.

The ornamental ironwork allowed of wide variation of appearance of otherwise stereotyped structures. The visual contrast between decorated and undecorated balconies is sufficient to convince the sceptic of this. Further, sunshine on the ironwork provides a constantly changing shadow pattern; and the decoration, acting as a frame, often enhances the external view, 10. In Melbourne many such houses faced extensive parks, and sometimes historic buildings. On hot days, the ironwork allowed for a freer movement of air, and, viewed from the outside, it secured privacy for those on the inside by breaking up the pattern of what was within.

Houses of the period are shown in 5, 8, 11, 14 and 15. The raised verandahs of single-storey houses were given a protective balustrade of cast iron, as in 5. More expensive houses were usually of two storeys, and were garnished by the complete apron, 14. In the central, early-settled areas, the houses abutted one upon the other, whether of individual designs, or in pairs, 15, or terraces, 8, and 11. Where land was cheaper, the suburban tradition of surrounding houses with their own gardens was begun. In these houses the ironwork decoration frequently extended to the sides of the building.

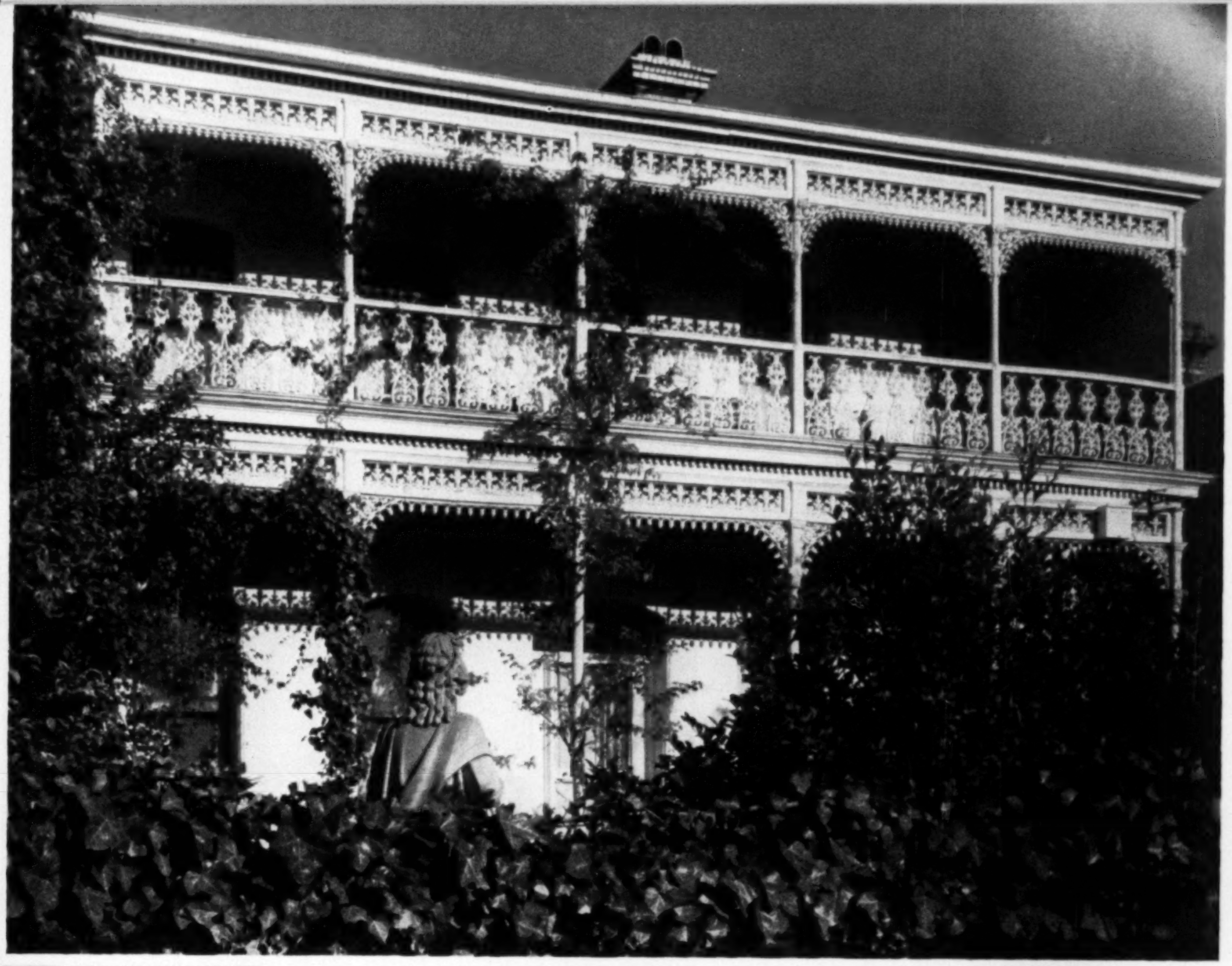
Fortunately, one of the finest early houses in Melbourne, 'Como,' 6, has been well preserved and has been delivered from imminent destruction by the recently established National Trust of Australia (Victoria). Even though the estate has been attenuated, it still stands in extensive grounds, three miles from the city. It is of great interest, since it combines a true Georgian style, modified to Colonial by verandah and balcony.

It is of interest that local rules of usage apply even in one continent. The building materials used in the early houses naturally vary according to the local supply. In Tasmania and Sydney yellow free-stone was used, in Melbourne, a much harder and more intractible blue stone (basalt). Brick, later covered by plaster, became the commonest material for walls, while slates roofed the houses. Galvanized iron solved the problem of roofing verandah or balcony.

Local rules for the usage of cast iron also existed, dictated by the availability of materials, the distance between cities, the poor transport, the action of external influence, and local ideas. Some of the differences have been indicated. In Adelaide, a distinctive style arose from the width of the footpaths in the city. The columns of the verandahs were inserted at the edge of the pavement, while the balcony was frequently recessed.

The use of cast iron for decorative purposes ceased in Melbourne quite abruptly in the last decade of the nineteenth century, with the end of 'the boom.' During the subsequent depression, building fell to a very low ebb, and few would pay for inessential decoration. When building became free again, new styles, which had appeared abroad in the preceding years, were unimaginatively used. International communications were now much freer, and the long time-lag in the earlier transfer of ideas was shortened. Iron was used but little, except sometimes in the curvaceous form of Art Nouveau.

There is now a rebirth of interest in ironwork, much of which has already been destroyed. The trends to destroy and to preserve it seem to be almost equal in the community. The occupiers of houses with iron verandahs treasure them and are content and happy in their lofty, well-proportioned rooms, even if they lack some of the conveniences of the modern dwelling. But the speculative builder is still their remorseless enemy.



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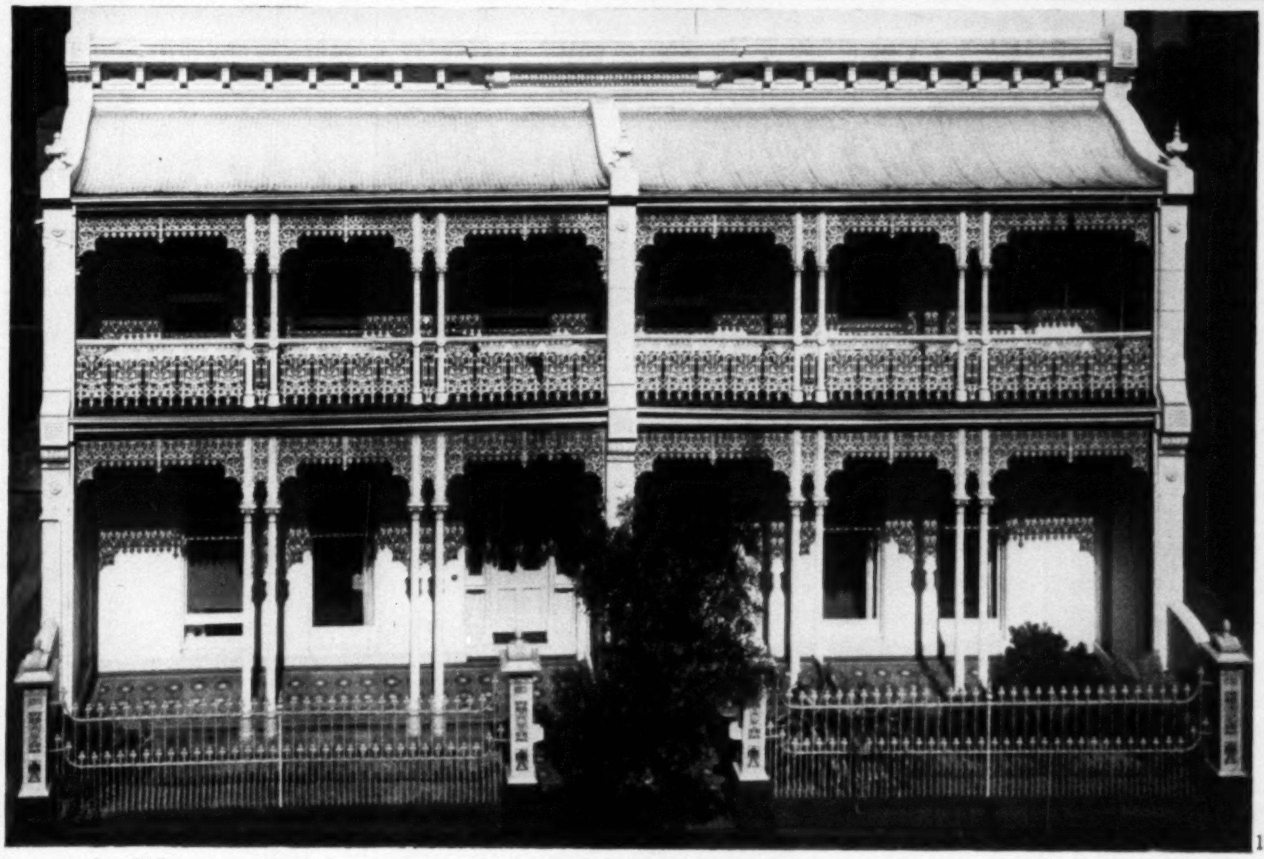
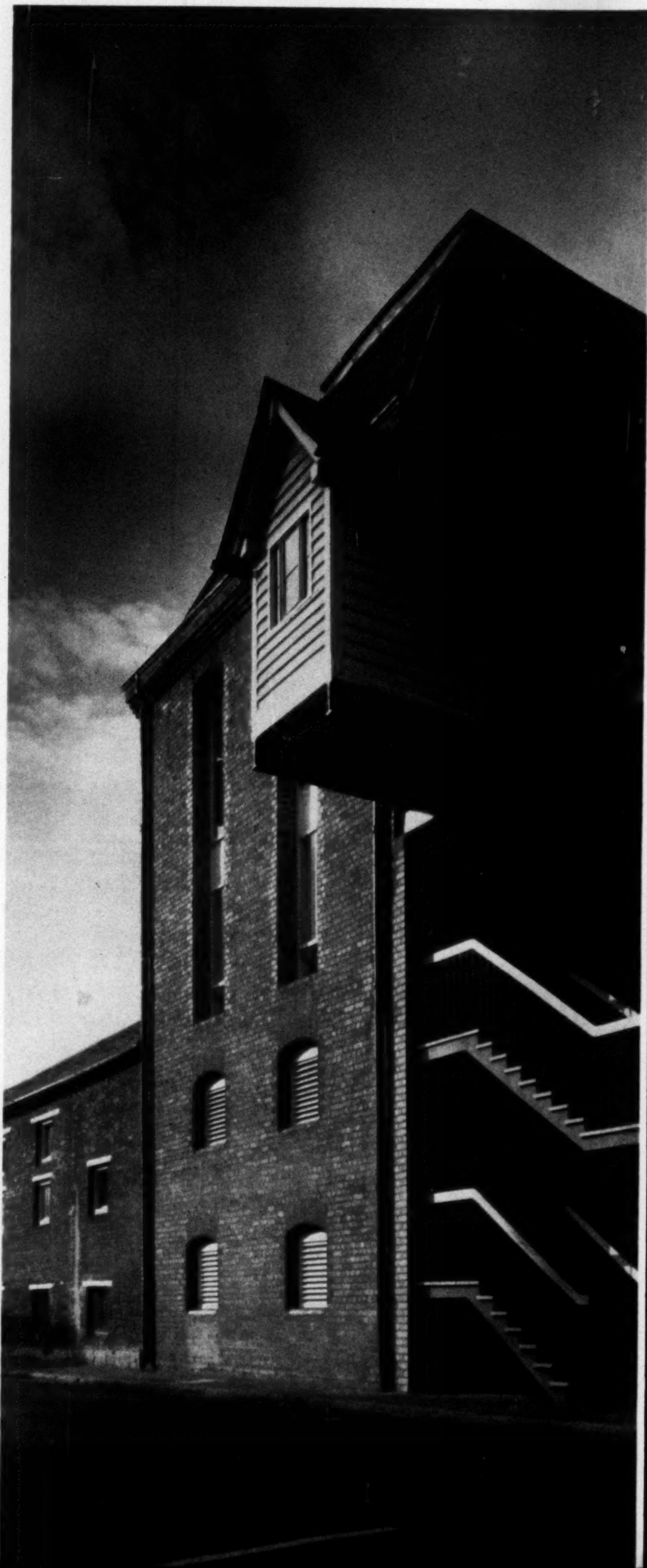


15

14, an unusually rich example of the two-storey cast-iron verandah: a suburban house in Millswyn Street, South Yarra, Victoria. 15, a pair of houses in Morrison Place, Melbourne.

1, looking southwards along Tidmarsh Lane, showing features of the old maltings restored, larger windows inserted where needed and an external staircase set into the old façade.

This conversion is an instance of the Functional Tradition being kept alive today. The Functional Tradition is a term that has recently been employed in the *Review* to describe that plain, forthright style of building, arising directly from the challenge of function, that is woven into the fabric of English architectural history alongside the more self-conscious architects' styles. It emerged particularly strongly at the time of the Industrial Revolution, to the buildings of which a special number of the *Review* was devoted in July, 1958. In that issue attention was drawn to the hitherto neglected architectural qualities of maltings, and their several affinities to the work of modern architects. In converting an old malting into offices and workshops for the use of his department, the Surveyor to Oxford University and his deputy have clearly been aware of these affinities and have taken pains to design the new details of the building in the same functional tradition.



OFFICE CONVERSION, OXFORD

ARCHITECTS **J. LANKESTER, Surveyor to the University**

N. R. RILEY, Deputy Surveyor

The malthouse, which was built in the nineteenth century, is situated in Tidmarsh Lane, on the east bank of the Isis opposite the Castle Mound. It was in use as a malting until it was badly damaged by fire in 1956. After the fire, the site and buildings were bought by Oxford University for conversion to offices and workshops for the University Surveyor.

The buildings on the site were in two main groups. First, the malthouse proper, solidly built in brick, which contained the malting floors topped by two "malthouse-type" chimneys, and storage rooms for grain and malt. An attached older building measuring about 100ft. by 60ft. was divided into three low floors on which the barley was spread out to sprout. The second group of buildings was in the shape of an L along the north and west boundary of the site fronting on to the river, and was originally used for storage and stabling.

As now reconstructed, the whole of the ground floor has been used to house the Surveyor's direct labour staff, which is organized as a more or less self-contained building unit and used for maintenance and minor works. The upper floors of the main building are used for offices. The L-shaped range of buildings has been partly demolished and adapted for use as a wood-working machine shop with an assembly room and joiners' shop over it, and also as a garage and fitters' workshop, with a service flat on the upper floors.

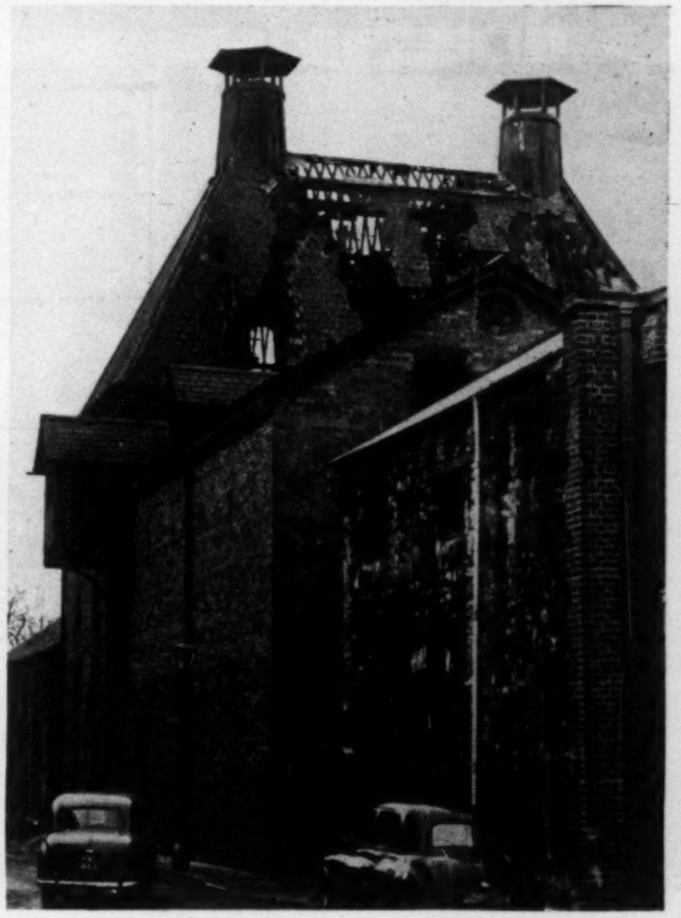
It was decided at the outset not to use the open space round buildings for the storage of building materials, these being kept in the older part of the building on the southern end of the site. The space has been paved with a combination of paviours, sets, and areas of concrete with an exposed aggregate surface, and is used partly as circulation space, and partly as a car park. The river bank, which faces Fisher Row, has been laid out as a garden.

That part of the building now used for offices originally had very few windows, and the storey heights were too low for conversion into habitable rooms as they stood. The old floors were removed (five storeys in all) and the materials reused as far as possible to turn the central building into a three-storey one, the upper two storeys of which form the offices. Because of the shape of the central block, it was practically impossible to devise a system of fenestration that would adequately light the central part of the first floor, and for this reason, and to isolate the offices as far as possible from the noise of the yard, the general office, the Administrative Officer's room, and the Surveyor's room were placed on the top floor. Other rooms demanding less light, such as dark-rooms, lavatories, etc., occupy the central part of the first floor.

Most of the windows are of sliding plate glass in brass tracks with timber frames. In the main block the original windows lighting the drying floors have been converted into long vertical windows in timber frames. The two large metal chimney cowls on the tower were found to be beyond repair and had to be taken down, and the roof is now in the form of a mansard with a lead flat. Generally speaking, an effort has been made to maintain the character of the old building as far as possible, and, since funds were limited, as much as possible of the original structure has been left.

Internally the finishes are simple, the walls being fair-faced brick treated with two coats of white emulsion paint, and the floors (except in the Surveyor's office where Missanda strip has been used) are covered with cork carpet. The ceilings are of acoustic board or, in less important rooms, untreated insulating board, whilst one or two walls in selected positions have been covered with Columbian Pine vertical boarding. Electric floor warming has been used for the offices. The electric wiring was simplified as much as possible, all the lighting controls being in the entrance hall with one switch for each floor, there being no switches in rooms, and this system has been found to work extremely well. There are no skirtings or architraves, plastic beading being used to fill the irregular space between door frames and brickwork. The doors are solid

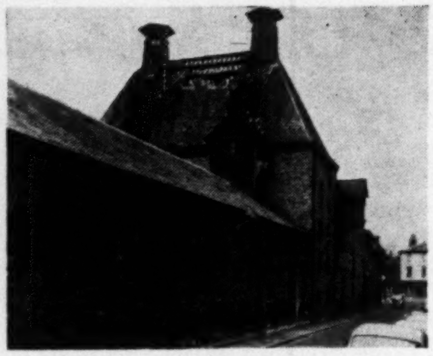
2, the maltings before conversion, showing the extent of fire damage. The view-point is approximately that of 1, opposite.



cored and faced with utile veneer. Doors, frames and window boards are also of utile. The entrance staircase is in concrete with Portland stone treads and wrought iron balusters with a pitch pine handrail, the timber for this being part of the original structure.

In order to obtain enough head-room in the joiners' shop, the floor of this entire block was lowered 2ft. on jacks. It is now reached by means of an external timber staircase in afrormosia with elm treads.

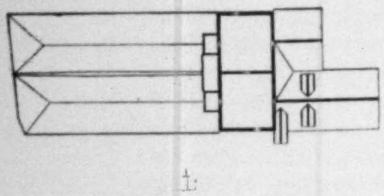
Recent alterations in the Botanic Garden resulted in the acquisition of the stone hound which now stands watch on the river bank.

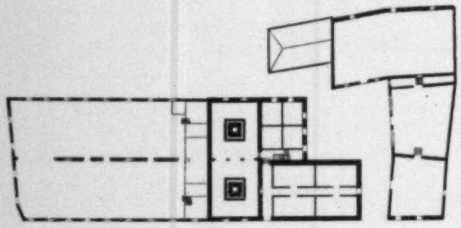


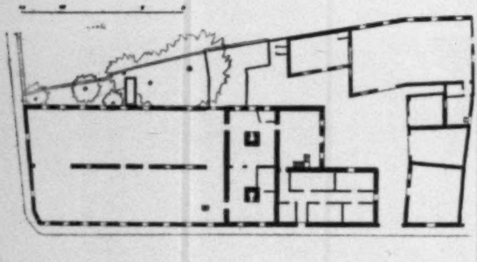
3

3, before conversion, showing the condition of the maltings after the 1956 fire and the outline of the high roof before the removal of the chimneys. 4 (opposite) shows the same view after conversion.

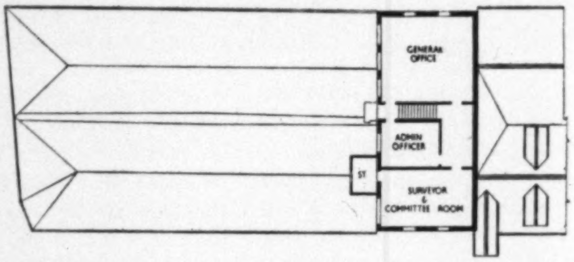
before



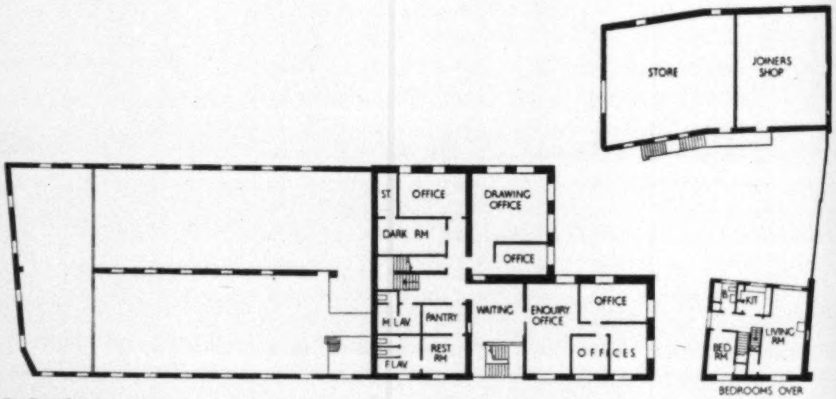




after


GENERAL OFFICE
ADMIN OFFICER
ST
SURVEYOR & COMMITTEE ROOM

second floor plan


STORE
JOINERS SHOP
ST
OFFICE
DRAWING OFFICE
DARK RM
OFFICE
M LAV
PANTRY
WAITING
ENQUIRY OFFICE
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REST RM
F LAV
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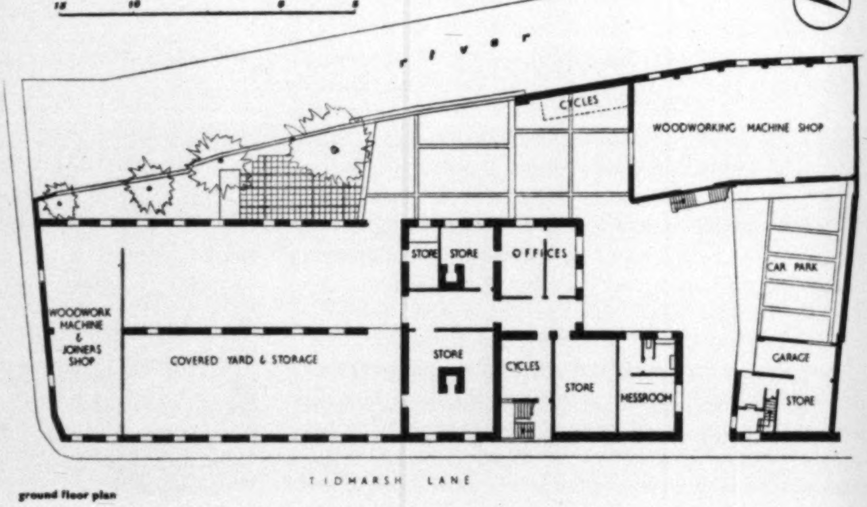
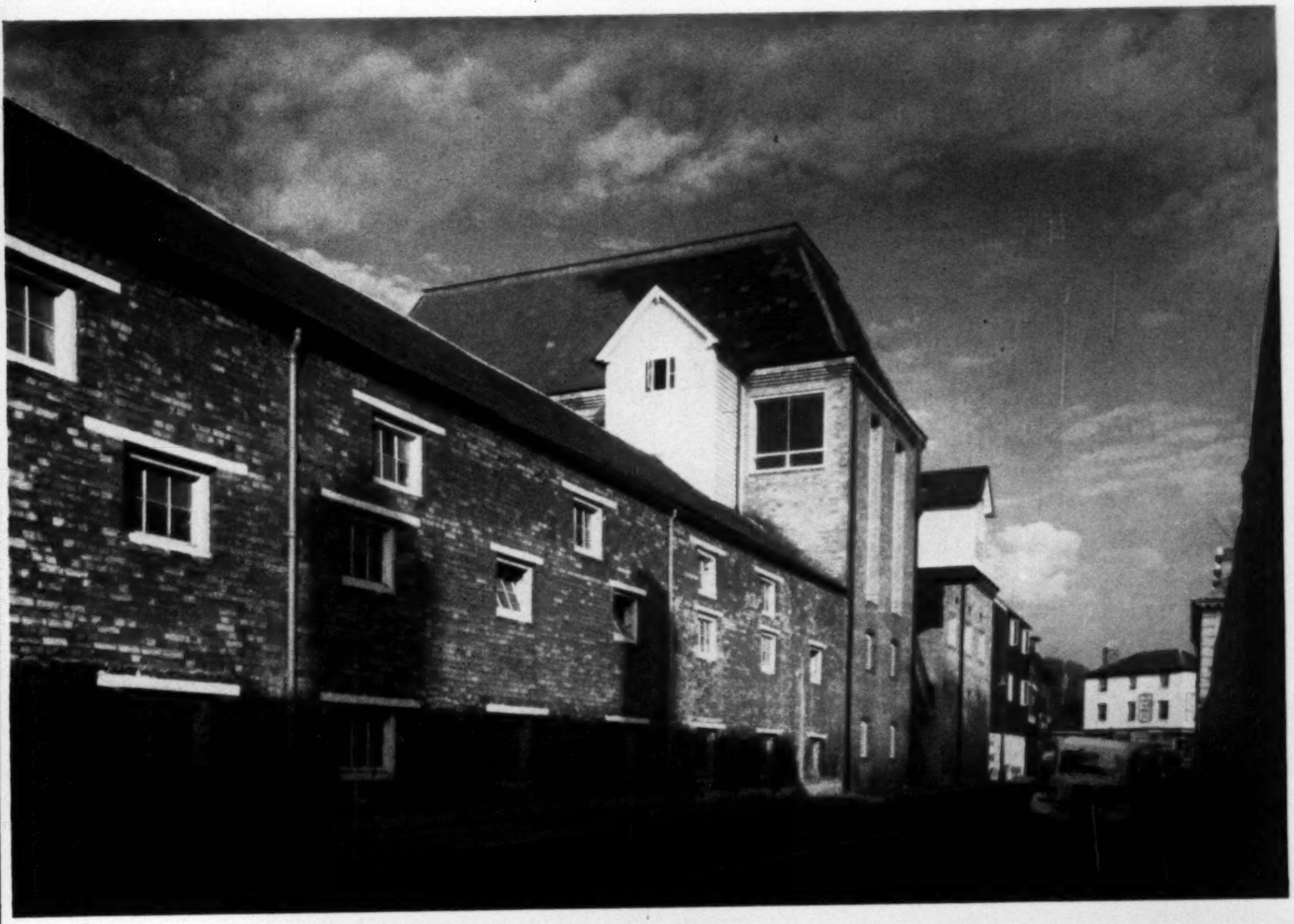
B
KIT
LIVING RM
BED RM
BEDROOMS OVER

first floor plan

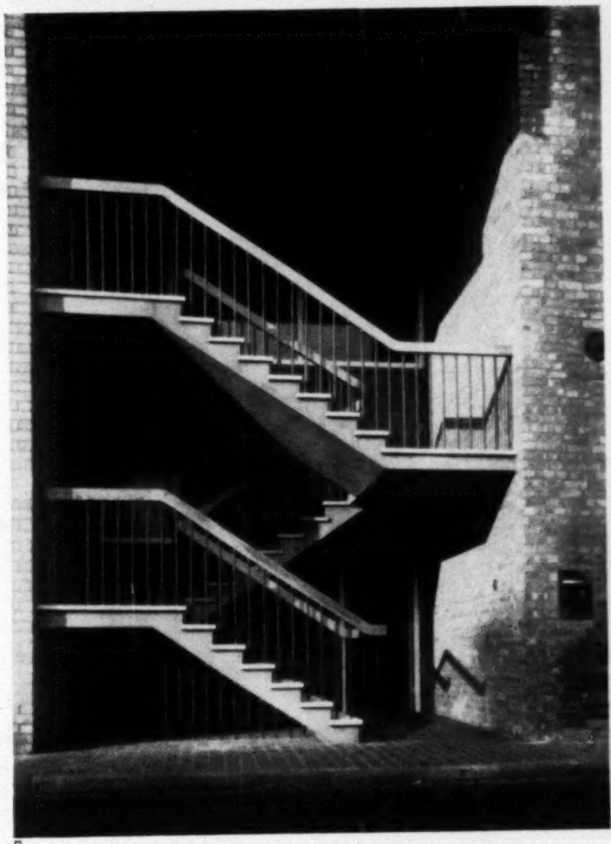

15
10
5
0
river
CYCLES
WOODWORKING MACHINE SHOP
STORE
STORE
OFFICES
CAR PARK
WOODWORK MACHINE & JOINERS SHOP
COVERED YARD & STORAGE
STORE
CYCLES
STORE
MESSROOM
GARAGE
STORE
TIDMARSH LANE

ground floor plan



4

4, the Tidmarsh Lane front, looking north, with the old malting-floors converted into workshops and the central block into offices.
5, the newly inserted outside stair leading to the main offices at first- and second-floor levels.
6, the store and garage, with flat over—seen also at the far end of 4—made out of part of the old stables.



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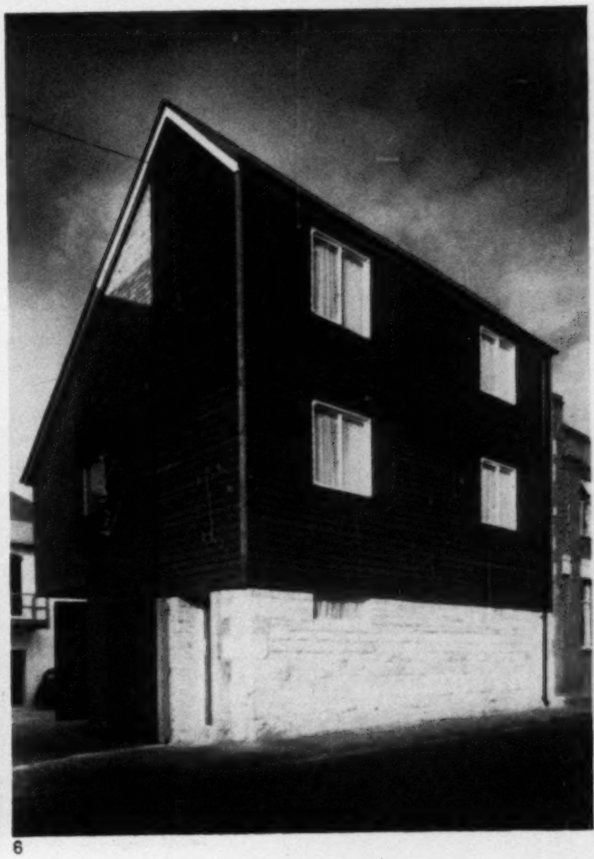
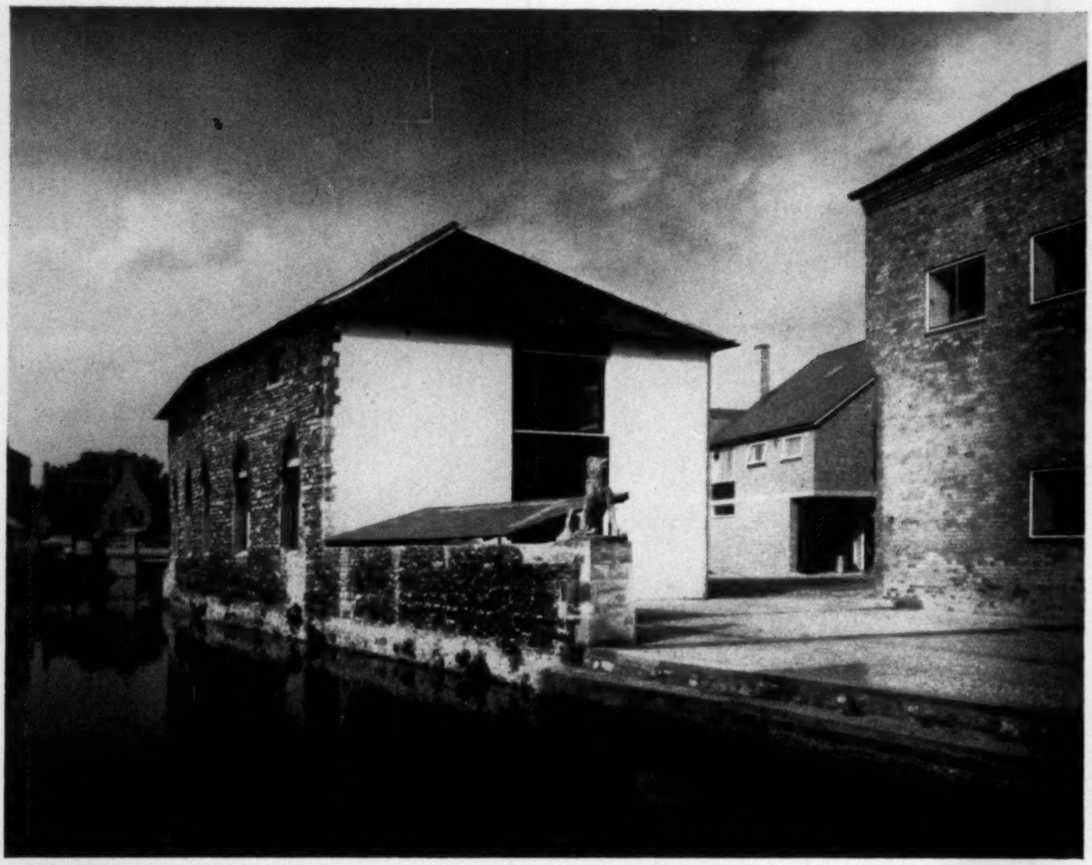


6

OFFICE CONVERSION, OXFORD

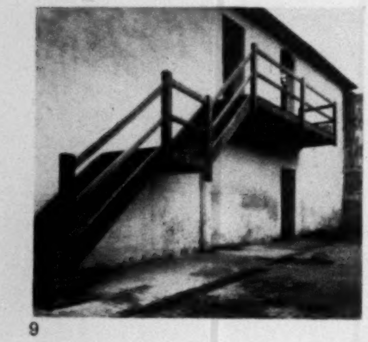


7

7, from the river, after conversion, showing on the right new windows to light the office and drawing office and on the left the old stone building in use as a joiner's shop.

8, looking along the river from the opposite direction, showing the garden that has been laid out between it and the restored building and the stone hound from the Botanic Garden.

9 (below), new external stair to the first-floor joiner's shop, in afrormosia with elm treads.



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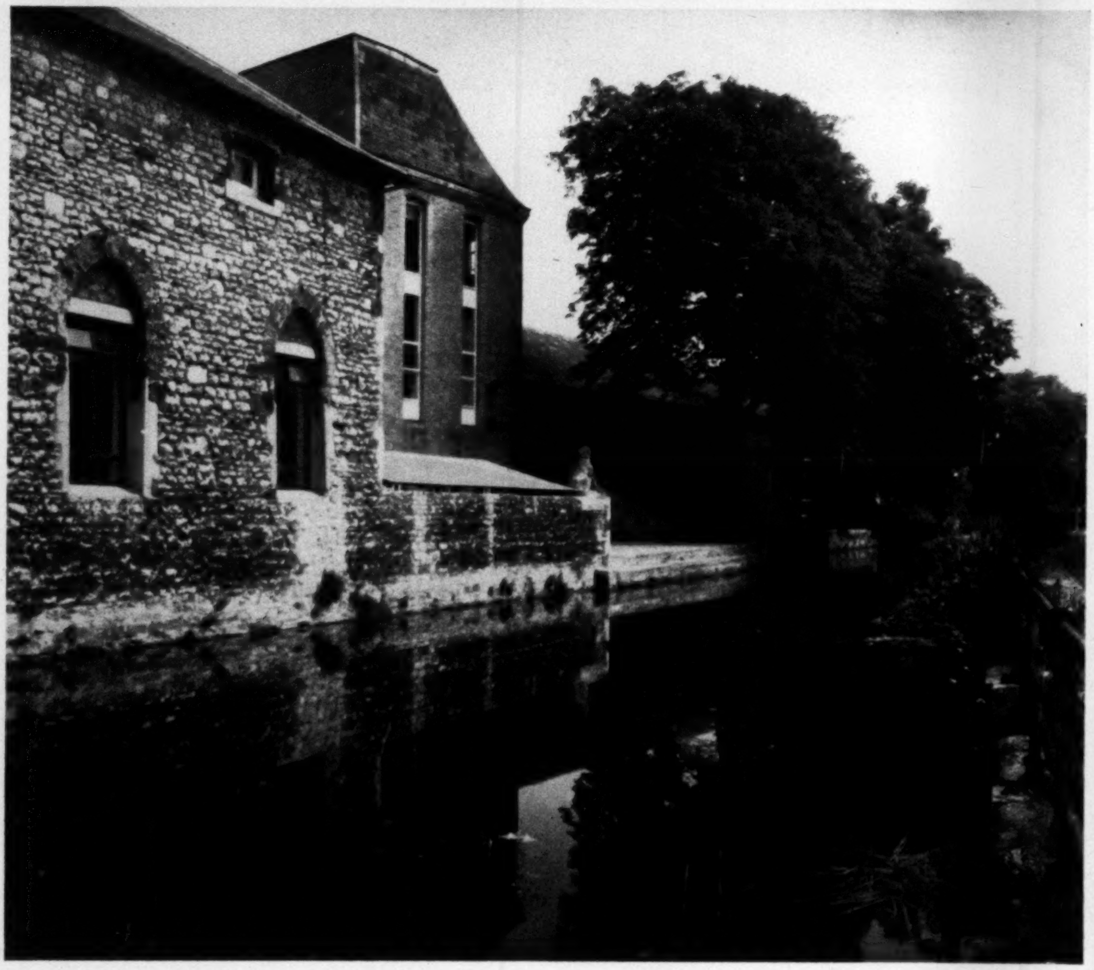


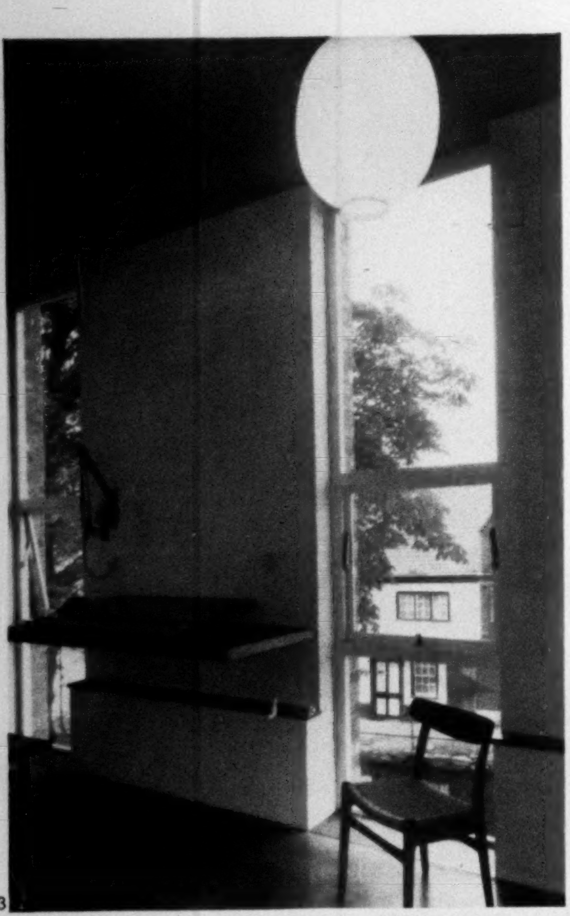
8

10

11

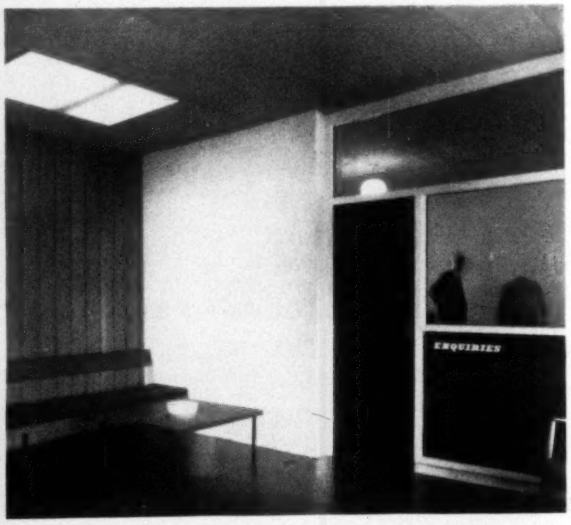
10 and 11 (above), paving patterns in the small garden laid out between the buildings and the river; Fisher Row is across the river in 10.
12 (below), the University Surveyor's office on the second floor, showing the new large windows inserted in the old walls.

12


13

OFFICE CONVERSION, OXFORD

Internal trim in accordance with the Functional Tradition:
13, inside one of the offices at the rear of the building, looking out through one of the new tall windows across the river to Fisher Row.
14, looking down the new internal stair and across to the open second-floor landing with escape-door leading to the roof of the old malting-block—now the workshops.
15, waiting-space and enquiry-office on the first floor, at the head of the outside entrance stair shown in 1 and 5.
16, looking into the waiting-space shown in 15 from the foot of the internal stairs. Note the thick wall, set back in stages, of the old central block.



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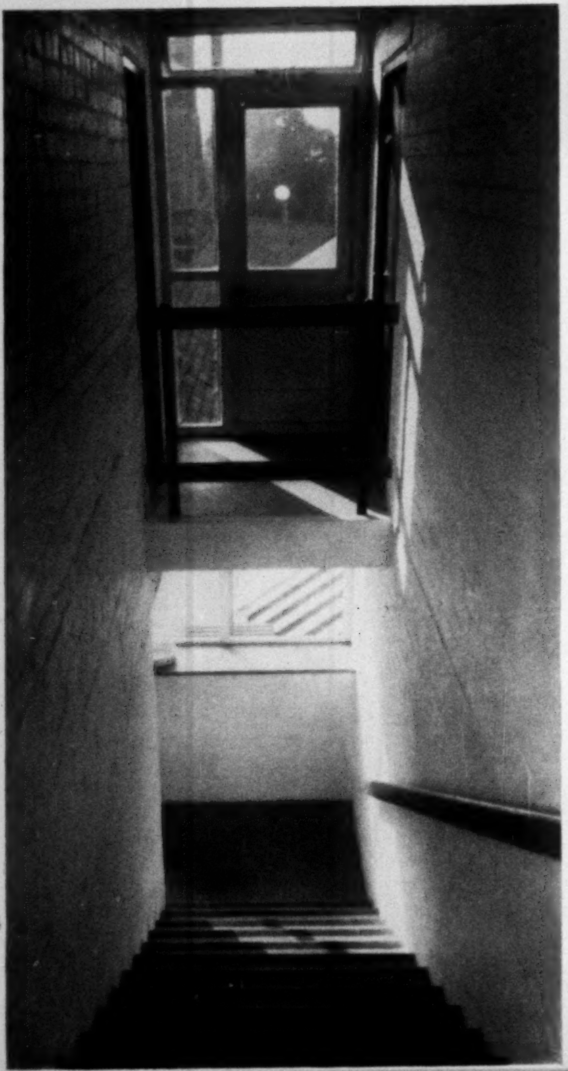
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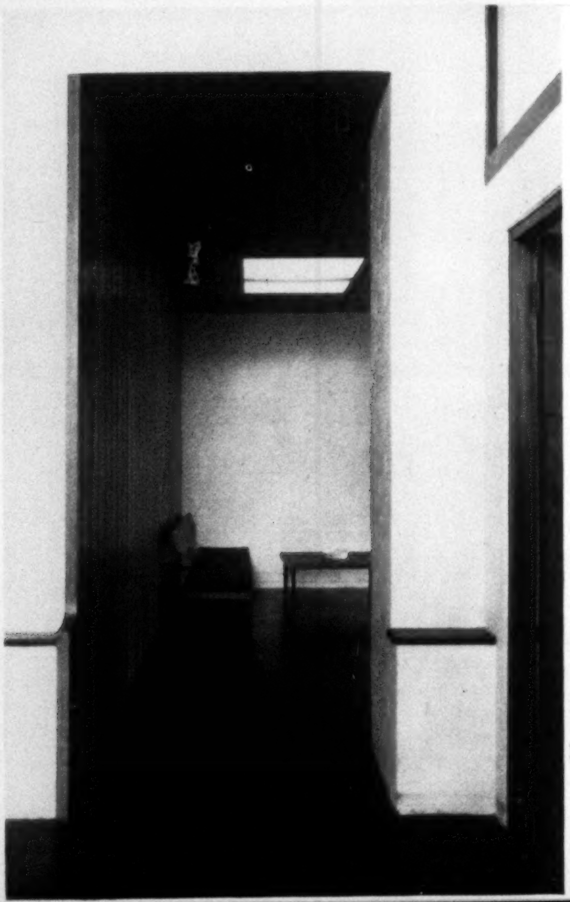
16

Reyner Banham
1960 series editor

1960

THE FUTURE OF *Universal Man*

3

Symposium with
ANTHONY COX, GORDON GRAHAM, JOHN PAGE & LAWRENCE ALLOWAY

This was no brains trust or round table of men selected to cancel one another out and offend nobody while keeping a weather eye on the reactions of an audience—this was a symposium in the sense that Socrates or Alcibiades would have recognized, the sense that Plato codified. The empty glasses stood on the table with the rest of the wreckage of the chicken lunch that had been eaten by everybody except **Anthony Cox,** who had been embroiled with clients, and arrived only in time for coffee and 'Yes, I would like a glass of wine'.

Apart from Cox who, as a senior partner in Architects' Co-Partnership, was present as a representative of the more substantial but progressive metropolitan type of practice, the others around the table were: **Gordon Graham,** a partner in a lively provincial office, Architects' Design Group of Nottingham, and—among other things—leader of a post-graduate seminar at the York Summer School; **John Page,** lecturer in Building Science at Liverpool University, whose appointment to the newly created chair in the same subject at Sheffield was known, but not then public; **Lawrence Alloway,** critic and, as programme director of the Institute of Contemporary Arts in London, an inside viewer of the recent drastic changes of opinion in many fields of creative activity; and

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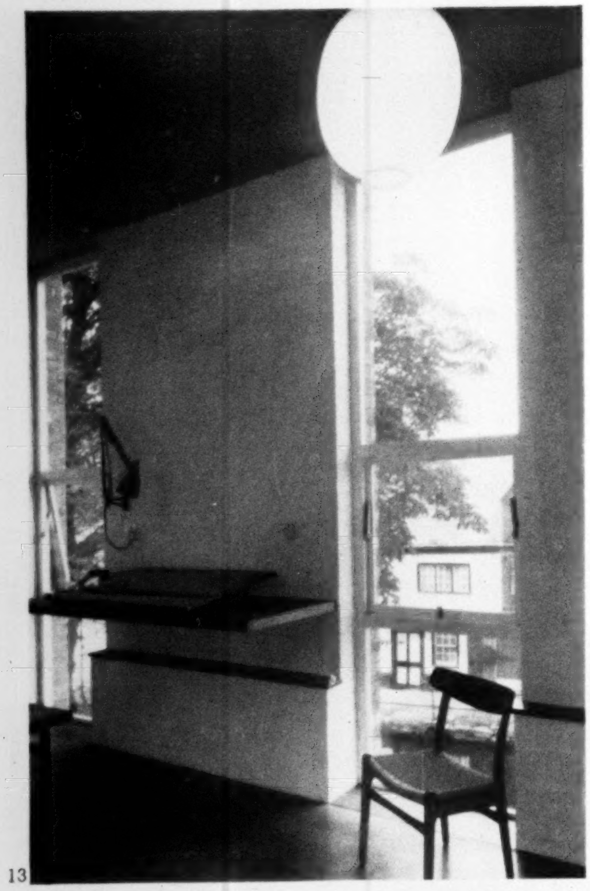

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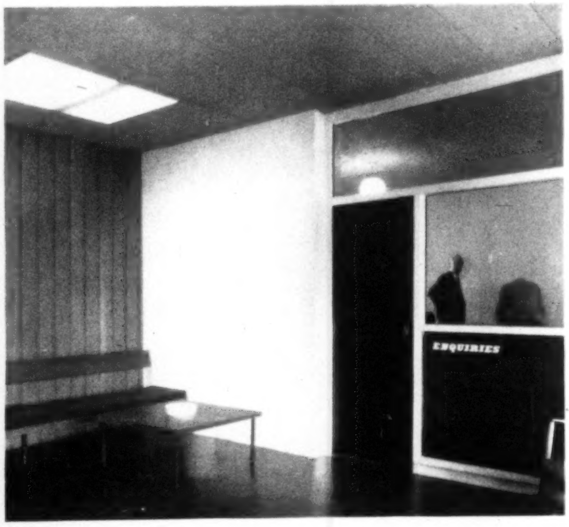

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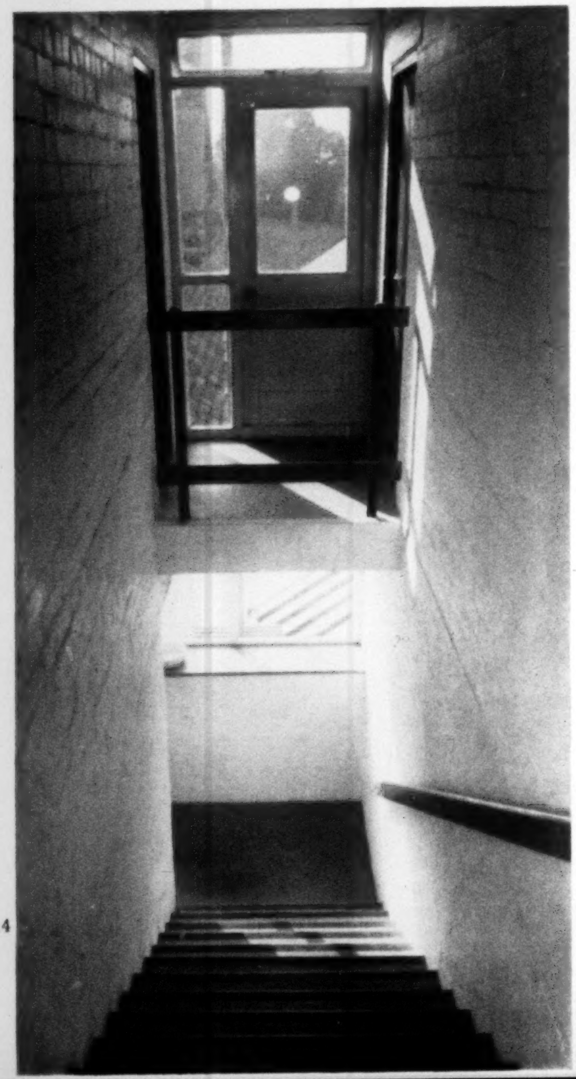

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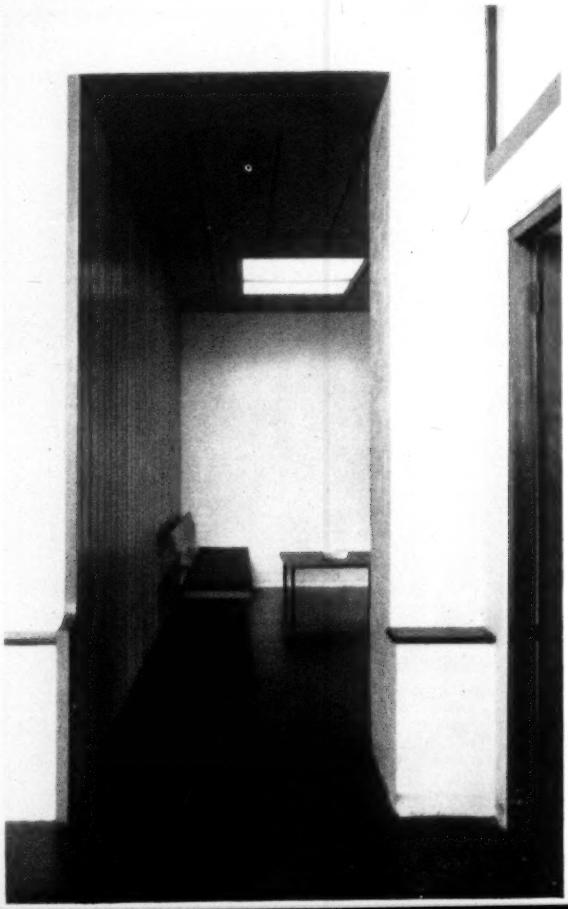

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Reyner Banham, ***1960*** series editor, to act as moderator and service the tape-recorder.

The subject of discussion was not one that can be summed up in a single word or even a compact phrase. In general terms, it was the intellectual climate of the profession of architect that was under review, within a range of reference that extended from the possible need for a more general scientific training to keep the separate building sciences under control, to the problem of what aspects of the traditional view of architecture were worth preserving under the present changed circumstances in which it is practised. But it was the changed circumstances that dominated the discussion, the confrontation between ***architecture*** and a ***technological society.*** Thus, during the preliminary banter, before the coffee had gone cold in the heat of debate

“ **Banham**—How about this drawing on the back of envelopes and menus? Why do architects do it all the time? Haven't they any other way of expressing . . .

Graham—Well, they are concerned with visual matters . . .

Alloway—Isn't it just an occupational gimmick? You know, like the way scientists always carry slide rules in their top pockets.

Within this field of references, the discussion swept both wide and close, on a very eccentric orbit. At intervals some distance apart, it twice passed through the 'hot' zone of direct ***architect/science relationships*** approached from the opposite standpoints of (*a*) what architects do to the sciences and (*b*) what the sciences might one day do to architects. In both cases it was, as might be expected, the 'human sciences' as Richard Llewelyn-Davies called them in 1960/2/vi-viii (AR, March, 1960). On topic (*a*), the debate had been seeded some time earlier by a reference, by Page, to ***architectural pseudo-sciences,*** a concept that the moderator picked up as a pendant to the problem of generalized scientific training.

3

ii

“ **Banham**—This is your point about the pseudo-sciences on the fringe of architecture, or the architectural verge of the sciences. An architectural student, on the whole—the profession at large—doesn't command the overall scientific discipline that would normally go with these things. So you get a special kind of sociology which is used only by architects.

Graham—What is this special kind of sociology used only by architects?

Banham—You've heard these discussions, all the stuff about the people in the Piazzetta in Venice and that kind of thing. I imagine that was what you had in mind, wasn't it?

Page—Yes, but I think the essential thing is that it's not based on observation; it's what the architect would like to believe about society rather than what he observes about society. You see, we really had this whole trouble with local authority housing, this sort of middle class image which the architect took to the problem—so you got all the rumpuses in the New Towns. Because they thought *that*, they left out all communal facilities for a long time, you see. They failed really to see what actual relationships were taking place in the East End of London—you know, the importance of the grandmother in the set up. Well, they didn't really know family structure, and took instead a special concept of family structure which was their own family, which they then used as the sociological background for purposes of architectural design; that's what I call architect-sociology.

Graham—I feel there's an implication that if architects stopped using their own sociology and really got sociological about sociology, they'd find a much better, clearly defined answer which wouldn't be so comic. And I just don't think that's true.

Alloway—If they found a way to collect sociological information properly and to put it to proper use when they got it, then—

Page—I think it's probably rather more a question of approaching people who are competent to answer this kind of question and getting their views. You see, we're fortunate in Liverpool University to have Doctor Chapman, who is a social scientist and has been extremely interested in some aspects of building sociology. And I think he would dispute very much that he couldn't offer concrete advice on a lot of the sociological problems which occur in building. So I think it's not a question really of training the architect how to use sociology, but making him aware of the fact that there are people who can give reasonably competent answers on these things and that his own ideas of society may be very biased and extremely limited.

Banham—In order to use this information properly, may he not need to have a training which is far less heavily slanted towards the arts, and much more slanted towards the general disciplines of science, or the sciences?

Page—I wish I knew what the Arts meant. (Angry voices in protest.) To go back to training again, “it seems to me terribly important that architects in training during their five years should be in contact with sociologists. And that they should respect their point of view and realize that they have something to contribute. And that sort of thing forms their attitude. I think the point is they mustn't pretend to be any one of these other things . . . to know when they're out of their depth and when to go and ask somebody else for an opinion rather than guess.

Banham—As you said before, there's a responsibility on the other sciences as well. You do mention Chapman, but Chapmans aren't ten a penny.

Page—Yes, quite. But they won't know which questions to ask and they won't know which opinions to respect unless they have some knowledge of the sociologist's discipline. I don't think they should be taught sociology, but they should be aware that there is such a thing and what it can do for them.

Alloway—You mean be aware of it in the way that they're aware of a Roman architecture, or something, do you mean in that kind of way?

Page—Well, just as aware as that, yes.

Alloway—It's just really assimilating enough information to be O.K.

Page—No, I should say they should be aware of it in the sense that if they design a project during their school course, they should be in contact with the sociologist—the sociologist should be the chap who tells them what the problems are; just as the structural engineer should be there and the heating engineer should be there. There isn't an individual architect who can solve all the problems, so he's got to draw on these people.

Banham—Will he know *how* to draw on these people?

Page—He's got to be taught.

Graham—And yet Schools of Architecture, as you say, are staffed by architects who aren't architects, you know . . .

Banham—This is my own particular professional problem, that the history of architecture is taught by architects who are vaguely interested in history, not by architectural historians. Which is, I think, a big problem right through the profession; that on the whole the profession would rather listen to an architect with a smattering of a speciality than the specialists themselves. But this may be a real problem in actual communicability of scientific ideas—this business of how far science can be interpreted in non-scientific language.

Alloway—That's a decreasing problem, though, surely, because there are a great many more crossovers now, and popularization isn't a dirty word any longer and so on. It seems to me that kind of barrier is disappearing.

Banham—But is what is coming over really good? I mean you, personally, have got a certain amount of experience in the way sociology comes over into, say, the visual arts. Is the stuff coming across really valid or . . .

Alloway—I think it's as good as the people who get it.

Banham—How do you mean? There's no margin?

Alloway—There's no margin . . .

Banham—If they suddenly got better or wanted more, would they command the subject—their *capability* to command a subject—would it be sufficient?

Alloway—I think so now because it seems to me, especially coming out of America, that there are a great many books giving this kind of information. I can't think of many English books, but a great many American books give it.

Page—I think the information is there and that one can build up now, especially the social sciences.

Banham—Yes. And presumably, as social science seems to sort itself out, and categorize itself, it may become more remote and harder to deal with. I mean architects understand structural engineers pretty well, but from then on you get an increasing degree of incomprehension, as you get towards the more statistical sciences, ones that literally depend on statistical theory, and depend less and less on simple, neat little equations. I mean as the stuff becomes harder to diagram in visual form, put it that way, so the architect loses . . . more and more loses contact with it. Do you find any practical teaching problems in this sort of thing?

Page—I should have said one of the problems of 'numeracy'—if I can use a new word—is lack of statistical training for the layman. We still teach in schools all sorts of peculiar things, but the elements of statistics, the very crudest elements, are not taught at all and people can't distinguish between an average and a statistical group with a range of deviations. They can't distinguish between a statistical answer—a corridor that is big enough to carry the average number of people walking down through it, or a corridor that is big enough to carry say 99 per cent of the load that is put on it. If you get a blockage it is the other one per cent of the time. They have great difficulty, most architects, in seeing the meaning of this kind of statement, *statistical* statements.

Banham—Yet, most architects know roughly speaking that door heights have to be designed a certain degree over the average height of a human being and that chair seat heights have to be a certain percentage below the average sitting height of a human being . . .

Alloway—But that's just operational lore, isn't it?

Banham—It is to a large extent, on a purely intuitive level. But they have that sort of—stick and string appreciation of some statistical method at least. They know which way the averages have got to be biased.

Page—I think one thing is very important to the architect. He should learn how to observe and look at things as they are and not as he wants them to be. They *want* to believe things so often they are not prepared to look, particularly on these sociological issues. They very rarely go and look at how houses do work and the sort of difficulties that occur—where the washing is actually hung, not where they thought it was going to be hung, and these kinds of problems.

Banham—My private worry in this is less the lack of the observant, than the lack of predictive power in the architect's hands, I mean, there is the classic example which turns up in every third block of flats you look at—the difference between paths laid down by the architect and the paths worn in the grass by the natives. Now it should be possible with certain buildings to draw a flow diagram, showing where the paths should have run.

Graham—The paths as laid down were drawn as you say on a bit of paper in the plan in relation to the heavy black rectangle, and which looked jolly nice, you know. That is the way they are done.

Page—Just like *Mon Oncle* . . . the film . . . You know, that wonderful path with so many people approaching each other and wobbling along the path. I think all students should be shown that film as part of their course.

Topic (*b*), the ***effect of the human sciences*** on architectural design, grew out of one of those desultory passages that occur in most real-life conversations, when everyone is busy with his own thoughts, but occasionally utters one, cautiously, to see if anyone else is working the same line of country. A brief interchange, perhaps no more than a definition of position, flares up, only to be killed off, as here, by the least outside disturbance—in this case it was the need to change the tape, which had run out, but the next tape turned out to be something quite different.

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Graham—You mean . . . churches?

Banham—Churches . . . buildings of a sort where the appearance may be in the initial brief to some extent. (Silence.)

This is something which is almost undiscussable. (***Uh-huh's*** of assent.) It obviously applies not only to churches, but to . . . say, spec-building, where people want something that looks like a house. A large part of what they *need*, is what would normally be written off as merely something that they *think* they want, which is a building having a certain atmosphere or having a certain appearance, or certain other sub-functional, meta-functional qualities. How are architects going to square up to a brief of that kind?

Cox—This is surely where the visual man rises to—to be the most important man in the team.

Banham—But has he the information to do it? Does he know how a church should be? . . .

Cox—. . . information? It seems to me that this aspect of information is something on which some research programme might well be done . . . by some scientists—psychologists, perhaps. With the effect of shape on people. In what sort of volumes and shapes do you feel comfortable or uncomfortable or relaxed or angry? At the moment we merely go on our hunches, don't we? On our previous experience.

Banham—This seems to me to be a point where the architect as the visual man lags behind the other members of the putative team. He doesn't have the backing of positive information, tabulated materials, that the other ones can throw in. They can say the heating system can be made to work so-and-so and so-and-so, but not so-and-so whereas he can only say 'Well . . . ' and start drawing on the back of a menu.

Graham—But is there anybody else at the moment who has? This is surely . . .

Banham—Studies in perception . . .

Alloway—All the architects can go on is a kind of disreputable tradition of certain colours and certain shapes having certain functions which we don't understand.

Page—I have always in a limited way tried to communicate the possibilities of this form of approach in architecture, because I think one needs more knowledge of the processes of communication, if one may call it that. But one would then be able to see how to organize your pattern in an effective way that worked. And one thing we are trying to do in Liverpool is to move off two dimensions into three dimensions whenever possible, particularly with students, so that they learn to think three dimensionally. You do a colour scheme on a board, but put it in a building and light it the way it is lit in a building, and the thing is . . . You could, I think, deal with the psychology of perception as the central part of the training, the way you perceive colours, the way you organize shapes . . . information on this kind of thing. Some of the concepts of rhythm, proportion and so on, do come into psychology and I do feel that research in the psychological aspects of the subject would be useful and I think one must always remember we have got our full scale experience which is what architects do rely on at the present moment. If they are visually aware they gradually become conscious of what sort of effects do work and don't work. We mustn't reject this, we must accept this traditional approach but we can add to the traditional approach the knowledge given by study of the psychology of perception.

Banham—Am I right in saying that there is in fact an enormous amount of material on these subjects now? Which no—schools or architects have tapped at all yet. What I find worrying is that they have tapped it to some extent, but nobody has really exploited it.

Cox—I think if more work was done on this, or even if what was known were co-ordinated and brought together we might have, as architects, some very troubling questions to ask ourselves. I mean, it seems to me of very great importance, say, in designing a hospital, take the out-patients' room, that you should provide an out-patients' waiting hall that reduces the anxiety of the out-patients waiting. One does one's best, say, to make it what we call humane, and not like a railway station or something, but you don't really know. If we did know, our whole concept of what is architecturally pleasing might be changed completely.

This was the only direct formulation of the idea of the sciences as a ***threat to architecture*** as we know it, but the idea is distinguishable, in retrospect, in much of what was said—on education (the compulsive subject of all spontaneous discussion among English architects), on relations with the public (what is the proper image of the architect?) and on professional self-criticism (is there a real design conscience?). But, most clearly, it formed the focus of a discussion, sombre, nervous and occasionally barbed, on the position of the architect in the building hierarchy and his chances of staying there. This topic saw the two architects at bay, for much of the time, against the scientist and the critic, in what was really the crucial argument of the afternoon—the ***future of Universal man.***

Page—I think in the schools there is still a great tendency to push the concept of architecture as being not a team effort, but essentially the creation of one mind of artistic ability.

Alloway—Universal man again.

Page—It is—you see it leads you into all the problems of the universal man, this lack of specialization that you get and the architects who have to branch into absolutely every field of knowledge, which of course they can't do competently. You can't really be an authority on the history of architecture, on current sociology and current building techniques and so on, and I feel that specialization is bound to come and one has to recognize—with the scale of building we're beginning to accept—that it cannot be the creation of one mind.

Banham—So that the universal man concept, which is part of the sort of professional heritage of architecture, has got to go?

Cox—I wouldn't agree to that. I wouldn't disagree with John Page that building now is team work it must be; but I still feel that there must be one person—whether you call him a universal man or not, he must be as near it as possible—who can hold that team together and whose concept, whose general concept can override everybody else's. Otherwise you just get a railway accident.

Alloway—But the point is . . . this unifying man need not be an architect any longer; he might be a public relations man, he might be someone who is good at organizing jobs, an expert in operations, You know, somebody who can handle . . .

Banham—. . . including visual appearance which he will order from the sociologists and market researchers.

Graham—He could manage the production team but he couldn't conceive the building.

Alloway—He's got to be the guy who can make the vivid little drawings on the paper, not necessarily a person that has the overall say.

Cox—But what has he got to do before he can make the vivid little drawings on paper?

Page—He's got to make the team work . . . the visual man or what we call him now, might be one of the people on the team, but not necessarily the head of the team, surely?

Cox—I think he should be the head of the team.

Banham—*You* would think so, but why?

Cox—Professionalism. I think that the sort of thinking that is demanded is architectural thinking.

Page—I mean it's already been said, I think by you, that architects are interested in beautiful buildings and you said rightly so, but it seems to me a man who is interested in beautiful buildings may not in fact be the person who may be able to relate a building to the block, a block to the neighbourhood, the neighbourhood to the large area. And somebody who doesn't give a damn about the beauty of the building might be able to do so.

Graham—Which team are we talking about now? City planning or designing a building?

Cox—The team putting up a building.

Page—I was thinking in terms of people putting up a big building.

Cox—Well, so was I.

Graham—I still think, and I may be out of date, I may perish, I still think that a big building must be one concept; a concept that includes the electricity, the structure, the ventilation. All the techniques and the functional requirements. And I think that is—

Page—Why is the architect the only person to do this? I thought we had already agreed that architects were failing to do this and that they weren't being taught in ways which would

P.S. by Page

I was inferring co-ordination of functional relationships like traffic-flow problems, rational layout for communication purposes, smoke control, etc. The traditional skills of the architect are hardly suitable for handling this kind of problem. In other words I was referring to rational aspects of town-planning as opposed to Civic Design as an aesthetic problem. The latter is clearly important, and is a problem on which the architect may be competent to give advice, but is not necessarily the dominant.

accustom them to handle quantities of information from all kinds of specialists. We want somebody who can handle them.

Graham—Yes, but I think potentially the architect can more easily than a new type of chap.

Alloway—Where are the architects at the moment, who are doing it? Or is there somewhere people are being taught in ways that might equip them to do it? I gathered from the earlier conversation the answer was 'no' to both those questions.

Banham—Well, the early conversation was somewhat loose!

Alloway—Well, does architectural training fit a man really to do this job, to assimilate everything?

Cox—Well, I think that is one of the things that is wrong with architectural training at the moment. But I don't think there's anything *fundamentally* wrong with it . . . I mean, this scientific way of looking at it has only happened fairly recently, hasn't it?

Page—Yes. I think I would agree with Alloway. I don't necessarily see why an architect should lead the team. This is obviously a point always made by architects because it is in their interests to make it, but there are a lot of other groups that don't believe that this is necessarily so. Now obviously the leader of any group organizing the construction of a building, there must be a leader and he must have the ultimate say. And it is most important that he should be able to co-ordinate the activities of a large number of specialists, both architectural and from the building profession—heating and ventilating engineers, all the other people. He has to do this. Now this doesn't mean necessarily that his aesthetic perception, if I could use that term, need be the most developed of all the people in the team. The aesthetic conception might come from somebody else in the team and he might say to the rest of the members of the team well this idea for this sort of formal relationship and so on, seems to be excellent. Let's accept this and work to it. What do you think, Mr. Heating-and-Ventilating-Engineer, and so on. And he doesn't have to be an architect.

Alloway—There's an analogy to this kind of teamwork in film making, where the architect is the equivalent of the director of the film, perhaps, he makes creative decisions and is talked about and the film bears his name, but often the crucial organizing decision in the assembling of the talent is the work of the producer. It seems to me that you would make the architect both the director *and* the producer always, instead of allowing for the producer being somebody who would hire the director, who would be the architect.

Cox—What you really mean is you want a good co-ordinating chairman. You do obviously on the larger sort of project.

Graham—What exactly is he going to do, I mean apart from just welding this team together and keeping them happy. I mean what is he going to do exactly?

Banham—That's quite a job.

Cox—If you've got to organize the construction of a million pound building there's a tremendous amount of . . . he's got to set about it first of all by producing definition of the brief and the client may think he knows what he wants, but in actual fact most clients don't.

Graham—This seems to me a part of architecture, but go on.

Alloway—But the point is, it isn't being solved at the moment.

Graham—I agree with that; I agree it's not being solved.

Cox—Having got the brief, then he asks to co-ordinate the various people that are going to take part in this operation of producing a design, to produce a design which meets the brief; and finally he's got to see that the building is built effectively and economically, which is co-ordinating and organizing the site supervision, instructing the site staff.

Alloway—I can't see one bit of that—I don't see it as part of the architect's responsibility.

Cox—I see no reason why the architect shouldn't do that effectively and we should have more architects who are able to do it effectively if training at the moment was geared in that direction, rather than in the Great Man, you know, producing a piece of architecture.

Alloway—In this case, the function of the architect is going to become purely synoptic. He's going to be a man who's got to master, in a fairly able sort of way, a great deal of current information and work with it. It seems to me you're much more likely to get top level pure architecture if you have the architect as one of the specialists whose contribution has got to be cemented by the co-ordinator, along with other specialists. Because the more kinds of knowledge that you require the architect to master, the less time he's going to have for anything besides synoptic exercises of one sort and another.

Cox—Yes, I grant that.

Alloway—I think you ought to keep the visual side as one kind of information to come in with other sources of information, like sociology, economics, etc.

Banham—Can it in fact be done like that, do you know?

Alloway—Well, it's not working out the other way—

Banham—No, quite!

Alloway—I mean . . . it is this plea which I detect from the other side of the table, that quite simply all you need is more universal men and architects' problems will be over. But every other field of human activity admits the day of universal men is gone.

Page—We still teach the architect as though it is possible for him to produce a universal man. Now if the talents of people were so great they could absorb all this information, then I would accept your point of view that we can have this concept of the architect as a single mind that can embrace all aspects of a job. I don't think we can possibly train people to do this. My very limited experience of teaching architects has already convinced me that we'll have to either have a sort of intermediate profession, one might call it a building co-ordinator, or alternatively will have to accept specialization within the architectural profession and the word 'architect' will then not have its present final aesthetic connotation. But you could have a man who was qualified to be called an architect, one who was a specialist in the aesthetic aspect and another who was a specialist in co-ordination, work organization. Another man might be a specialist in problems of construction.

Alloway—I agree, but there's a tendency to give aesthetics . . . far too much to do; to call aesthetics any chance hunch or decision. Anything that the architect dreams up is called aesthetic and thought to have some sort of absolute value. I mean aesthetics is not necessarily the overriding thing in a building, any more than it can be in a film, just because it's felt to be a good thing. It's not like in a one-man business; like writing poetry or painting pictures, where you can have absolute aesthetic control. You can't in a big group enterprise, like a building.

P.S. by Page

Universal man in this context implies somebody with a general grasp of the values and the working concepts of civilization. Contemporary architects often believe they have this, but their education is, in fact, very narrow for, in acquiring the large amount of specialist knowledge they think they require, they are very liable to be forced to neglect their general studies. It is possible to train people to have a broad outlook, but is not possible simultaneously to give them a lot of specialist knowledge. The real choice is between less specialization with more genuine delegation of responsibility to other specialists, or greater specialization on design at the price of being prepared to work under a co-ordinator.

Banham—I think, yes—it arises, I think, from the sort of *prima donna* concept of the architect. Within all other fields of creative engineering activity, you work in a team. You don't know who the designer is; you may know the leader of the team, but in actual fact in an aeroplane, there's some 2,000 or 3,000 who have designed the aeroplane.

Page—Do you feel the architectural profession is prepared to accept some specialization?

Alloway—Only if they stay at the top. Specialization under them, then the hierarchy—then they're O.K., aren't they?

Page—With this phrase universal man, doesn't it sort of presuppose that man can do everything. I'm not suggesting . . . I've rather been supporting universal man, but I'm not suggesting that the universal architect can do everything, but he should be as aware as possible of what is going on in all these fields. That somebody has got to be aware in order to co-ordinate it. It may not be an architect . . .

Alloway—. . . if it weren't an architect. It would be better if it weren't an architect.

Page—Well, I don't know—it doesn't matter whether it's an architect or not, but somebody has to be.

Graham—I still think it's an architect.

Alloway—And he's read all the books and be good at drawing, you mean?

Page—Well, he's got to be able to think in three dimensions and think in technical terms in three dimensions; and he's got to be able to think in terms of not just three dimensions in the abstract, but in terms of concrete and steel and building materials and electricity and heating and cost—various things—and read all the important books, yes.

Graham—So you *do* need a universal man?

Page—Yes, but his degree might be for instance a doctor in economics, something like that.

Alloway—I think he's more likely to be somebody like that.

Page—I am convinced that we must move towards the design team and concepts of the design team. I wouldn't like to say offhand—

Banham—Isn't that the professional tradition of your speciality, though, as against the professional tradition of the architects, who rather hanker for the idea of the universal man?

Cox—No, I'm not opposing you on this design team because—

Banham—one man can't do it—

Cox—In my practice, most of the work is done in that way; sort of fundamentally we are in agreement; the only thing . . . (several voices together) . . . I don't think the computer is the way. It's our only point of disagreement.

Page—So you say really the building organizer must be an architect. I don't know if you can use the word architect at all; they're such a different type of species we're envisaging that once you use the word architect you get all these connotations and meanings that we're used to for the architect. I think if you use the word building organizer and not attach any other specific name to him is a much safer way.

Cox—Would you accept the fact that, if there is to be an organizer at the head or co-ordinating this team, then he is going in some way to stamp his attitude of mind on the particular building that is produced as a result of that team work?

Page—He can't help it, yes, he must, of course.

Cox—Would you agree also that he must essentially be a leader and people who are selected to enter this aspect of the profession must be selected, amongst other things, on their capacity for leadership?

This was a good question, and a good point at which to leave the discussion, partly because the argument had become repetitive—both sides, having reached positions from which they would retreat no further, were glad of an easy way out—and partly because the ensuing attempt to discuss leadership-psychology soon ran aground in general admissions of ignorance and uncertainty.

Yet, on reflection, ***leadership*** is the problem. The architectural profession's claim to be 'captain of the building team' is based largely on a claim to hereditary divine right of kingship, even if it is defended on the grounds that there is no one else who can do the job. But when, as in this discussion, positive proposals for alternative claimants to captaincy are brought forward, the hereditary nature of the claim becomes evident—'I still think it has to be the architect.'

The hereditary stand may be a good one; it implies practice, and the habit of command, a tendency to comprehensive thinking, however nebulous. But what are the tolerable limits on nebulosity? Are the conditioned reflexes of habit a satisfactory substitute for conscious action based on knowledge? It becomes increasingly clear that many thinking men, not actively engaged in any struggle for captaincy (and Page and Alloway spoke here for a considerable body of opinion) feel that the ***tolerable limits have been exceeded,*** that conditioned reflexes—operational lore, in fact—will no longer suffice.

Architects, for their part, feel that they are being manoeuvred out of their rightful position by a horde of specialists who don't care about architecture. But the division splits down far deeper than a straight struggle for power at the top, the whole ***basis of thinking*** of the two sides is ***different.*** To use Charles Eames's terminology again, it is 'apparent intelligence' on one side versus operational lore on the other.

This is not to say that the technicians are not interested in aesthetics or social morality, or any of those other subjects that architects continually bring forward as the contribution they are uniquely qualified to make. Alloway rightly drew the parallel (or divergence) with film-making, but automotive design would have served equally well, since in both cases there is a design hierarchy in which ***aesthetics*** and ***social content*** are in the hands of men with like minds to the technicians—architects may not like the results, but that is another matter.

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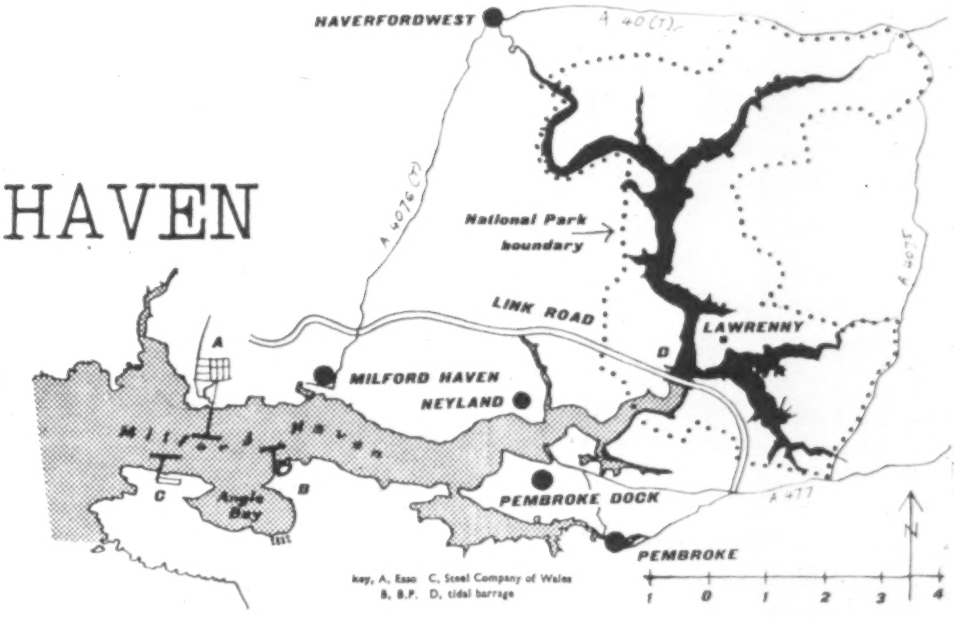
In any case, Alloway drew his comparison to make another point—the structure of the ***design hierarchy,*** and the probable place of the architect in it. This problem will surely prove to have a manipulative solution—anyone can boss the hierarchy provided he has the leadership qualifications. But—and this again is crucial—he is likely to be so busy with what Alloway called ***synoptic exercises*** in over-all management, that he will still need someone else to do the designing for him.

And it seems likely that—beyond this—whoever does make the visual designs will only be able to stay in the hierarchy by becoming like-minded to the technicians in it. That is, whoever gives a building its symbolic or expressive values cannot expect to do so on the basis of an inherited mystique dating back to pre-technological times, He must now move on to the more solid footing of ***quantitative and qualitative experimental information,*** even if this means the abandonment, as Cox suggested, of positions that architects now hold dear. An increasing number of architects now see this, as Cox does, as a likely development, a smaller number see it, as Llewelyn-Davies does, as a necessary development. The future of universal man, if he is not to become a battered relic, like the title block of this article, appears to lie in his becoming first a qualified technician. Repeat, ***first.***

Raymond Spurrier

MILFORD HAVEN

THE IMPACT OF INDUSTRY ON AN UNDEVELOPED AREA



Now that the hue and cry has subsided and the development of Milford Haven is actually taking place, we are able to judge just what effect industrialization is likely to have on the rather special landscape of Pembrokeshire. Rightly or wrongly, major decisions have been made which allow three important developments to take place in the National Park, and it is to be assumed that if these decisions were wisely made, no undue prejudice to amenity would arise. The least one can expect is that as mere precursors these schemes should be setting sufficiently high standards of design and siting to give future developers something to emulate.

In this respect BP look like creating a model of how to absorb twentieth-century technological installations into the landscape. Popton Fort, a massive naval structure of 1865, was providentially placed for an enlightened developer to take advantage of, and there can be nothing but praise for the way BP have seized the opportunity. A decaying monument has been restored practically intact and made to serve as well as camouflage the functions of a modern ocean-going tanker port. Eight crude oil balancing tanks, originally thought to be needed close by, have now been sited on low land 1½ miles away where they will cause little disfigurement to the landscape and where some tree planting is feasible to soften what might appear to some to be a too rigid geometry.

On the other hand, and on the other shore of the Haven, the Esso refinery is an altogether bigger development, a much bigger problem and therefore a greater challenge. But it looks here as if technology will be merely superimposed on the land surface. How much this is attributable to American methods is uncertain, but since both companies are equally fortunate in being advised on landscape matters by S. Colwyn Foulkes (who is being retained by The Steel Company of Wales) it would seem that the advantages lie with the company backed by an enlightened design policy which began with posters, has progressed to petrol filling stations, and is now paying off visual dividends at the Popton Terminal. Alternatively, or perhaps in addition, the tangled web of administrative procedure may be found to have some bearing on aesthetics.

Of course it must be practically impossible to conceal a whole refinery on the Esso site. Little thought can have been given to this aspect at the land acquisition stage, and aerial views show how unsympathetic to the contours is the grid-iron layout adopted. Despite careful siting in the valley the installations are already very visible, and perhaps the only thing to do now is to make a virtue of simple geometry and paint in bright colours so the whole thing will appear as a clearly artificial toy in the scenery. No amount of tree planting afterwards will completely hide it or the associated industries which must surely creep up the slopes to fill the rest of the thousand-acre site.

The projected Tidal Barrage, however, is one significant piece of development which need have no detrimental effect on the landscape; in fact it could have an enhancing effect and at the same time act as a visual symbol of planning policy—a policy postulated by THE ARCHITECTURAL REVIEW* for a close-knit industrial Haven distinct from an intensely rural hinterland, and one which the County Council as Local Planning Authority are trying hard to pursue against heavy odds.

Parts of the Pembrokeshire National Park have already been fouled by the Service departments, and as if this were not enough, the Steel Company of Wales with its proposed iron-ore dump 300 yards from pretty Angle village—ironically the 'best kept village in 1958'—has been allowed to make a further disastrous incursion. This results from a straightforward planning application rejected by the County Council in accordance with its principles of confining industry within limits, but perversely allowed later by the Minister of Housing and Local Government—perversely because of his own views that the planning of the Haven area should be far sighted and take into account from the outset the whole area that can properly be regarded as appropriate for industrial and commercial development.

The key to this and other proposals is of course the availability of deep water berths. Yet technical evidence on navigational aspects of this case seems to have been by no means conclusive, and the lack of any expert overall knowledge not only makes it difficult for the Planning Authority to prevent the squandering of unique facilities but probably led to a bad decision on this particular application.

An iron-ore dump could have been easily concealed on a fraction of the site Esso acquired for their refinery, and for which purpose it is not particularly appropriate. Nor, for that matter, was it essential to have a refinery here; oil can be pushed along pipes. BP oil will be pumped 60 miles to the refinery, so the Popton Terminal demonstrates that the use of large areas of immediate hinterland is not a necessary corollary of marine installations. The administrative system does not, however, enable the reshuffling

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**Milford Haven*, by Ian Nairn, AR, March, 1958.

of land ownerships and the direction of development to the best sites.

Esso's planning application was referred to the Minister who allowed the development with the proviso that details should be submitted direct to him instead of the County Council, and he would in turn consult with the County Council, the National Parks Commission and the Royal Fine Art Commission. Mr. Brooke clearly believes there is safety in numbers. The County Planning Officer, Mr. J. A. Price, has already commented elsewhere on this cumbersome procedure and given as his opinion that once a first-class landscape consultant has been appointed he should be allowed freedom to carry out his work in conjunction with the planning authority who need only resort to the Minister and the Fine Art Commission on points of dispute.

This method has worked well enough under BP procedure, which is much simpler and has produced admirable results. The private Act empowers the construction of jetties, tank farm and pipe line; it requires the employment of a landscape consultant and leaves him to deal with all visual aspects of the work including the siting, design and painting of structures, fences, sea walls, the deposit of spoil, planting, etc. Here it should be noted that under normal planning legislation, fences for instance are generally not subject to control—a small point perhaps but one with enormous visual implications. BP fences, whilst not beautiful, are at least an improvement on the ubiquitous concrete used by Esso.

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[continued on page 265

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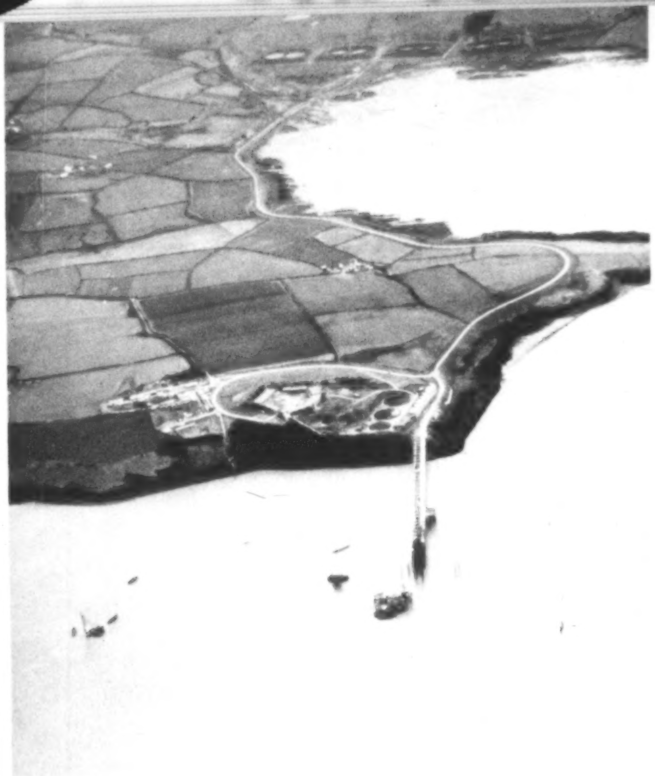
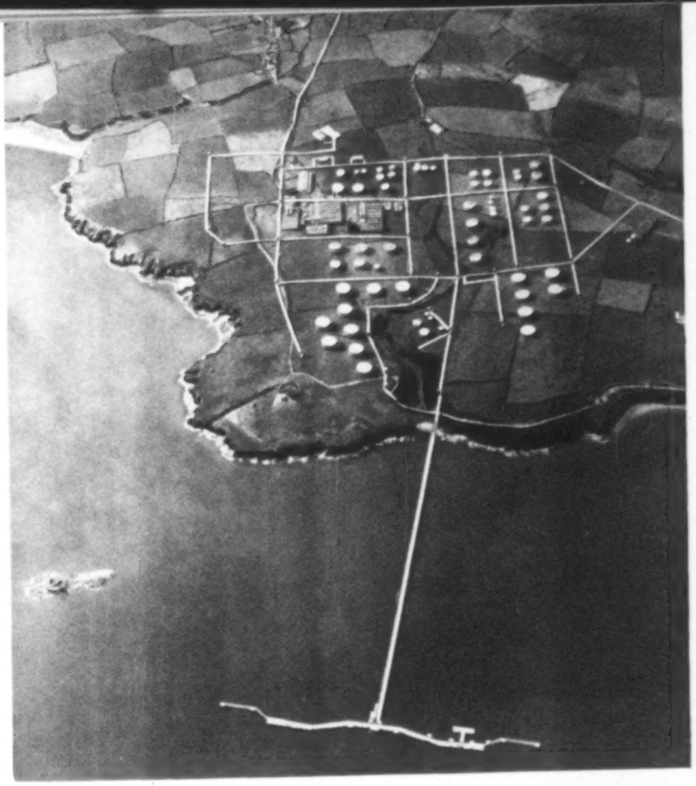
industry into landscape





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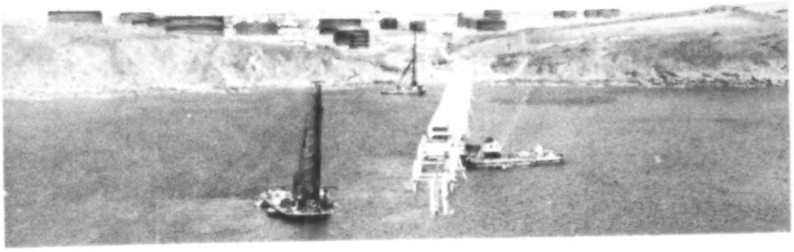

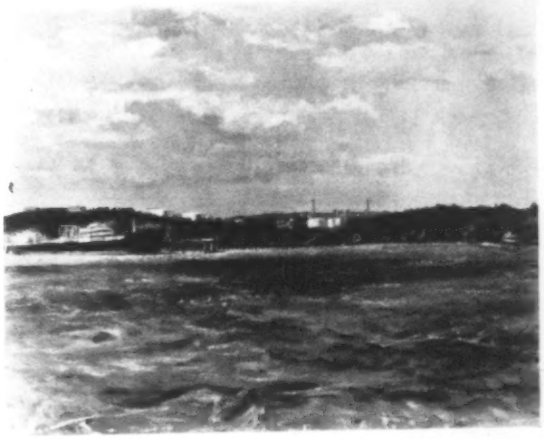

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landscape above the barrage

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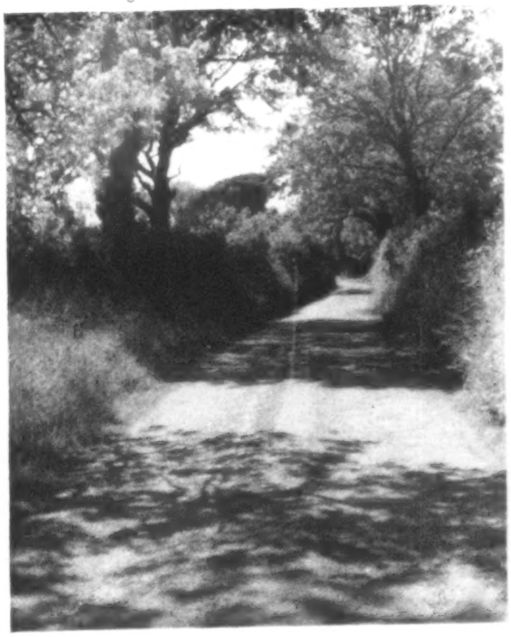

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of land ownerships and the direction of development to the best sites.

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[continued on page 265

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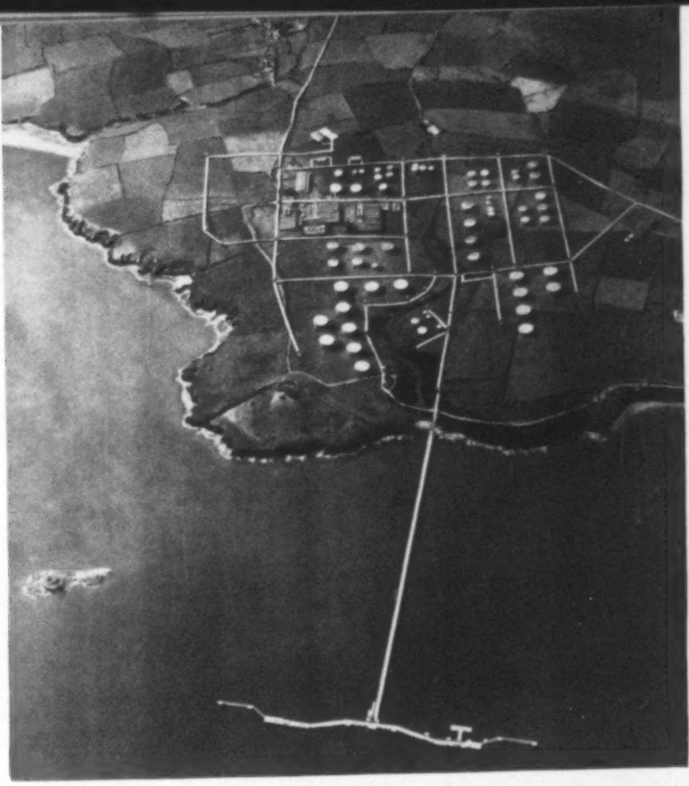

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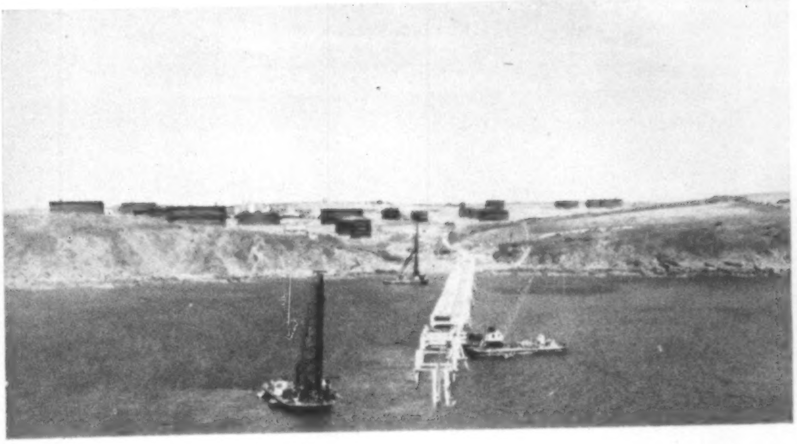

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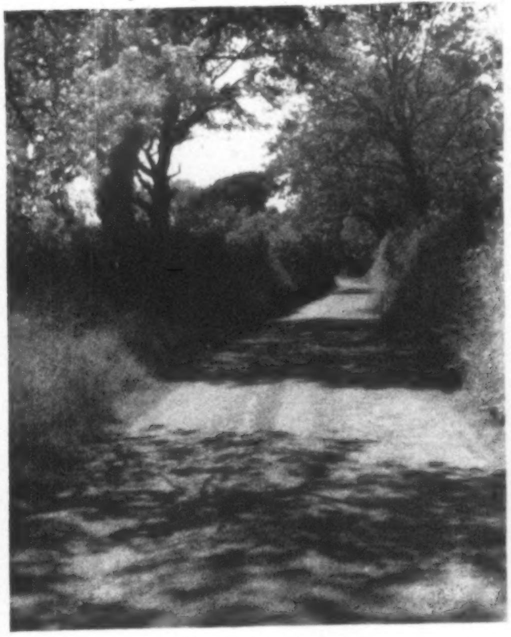
landscape above the barrage

5



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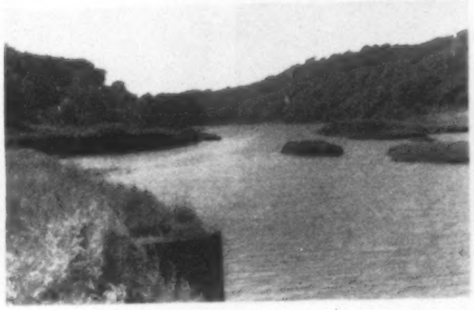

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local warnings

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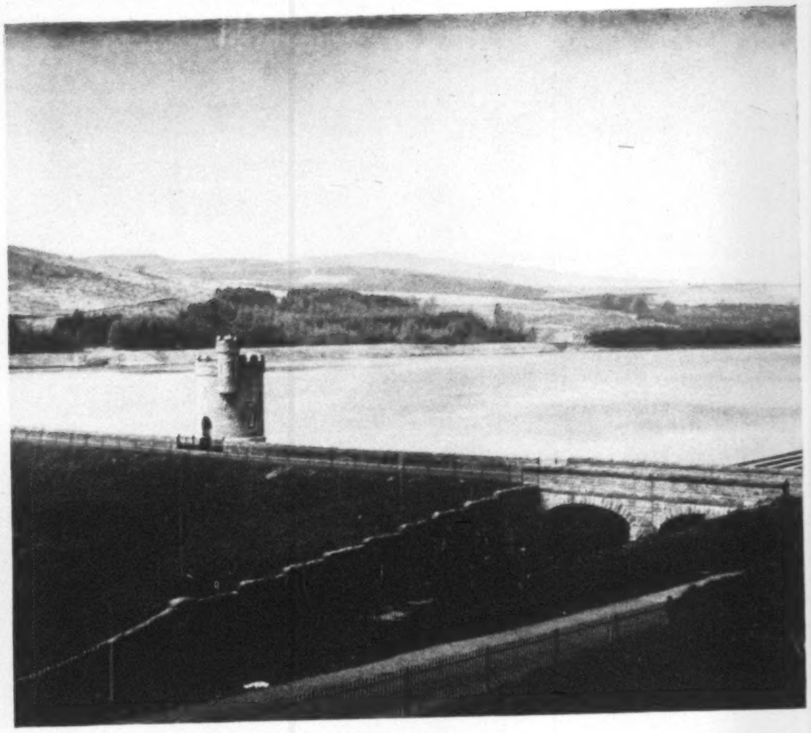


11

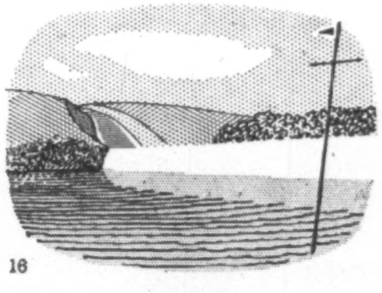
Pembrokeshire vernacular

12, 13

14, 15

The proposed barrage, and the yachting station that could be developed as a result, have enormous waterscape possibilities. At present Lawrenny Quay, 10, *where the yachting station would be, is untidy and depressing with none of the firm and intrinsically orderly quality proper to such places. The barrage itself would be a visual disaster if built in the usual Water Board style,* 11 *(Cardiff reservoir, Merthyr Vale).*

There are, however, enough examples of good building and detail in the vicinity of Milford Haven to inspire improvement on the above, adding interest to the natural landscape and enhancing the view. 12, 13 *and* 14 *are examples of the Pembrokeshire vernacular using simple shapes and materials and a bold patterning of black and white that looks appropriate in a rural or a marine setting. In addition it will be important to ensure that the link roads at maximum* 1 *in* 20 *gradients do not sever the landscape with a suburban ribbon of tarmac and the usually associated kerbs, poles and wire fences. The traditional Pembrokeshire half-sunken road with hedges,* 15, *will suffice here even for industrial traffic, although the maximum* 63 *feet cut into the bald edge of the Williamston Mountain envisaged by the Parliamentary Plans,* 16 *below, is a bit drastic. One method of reducing this would be to sweep the road across the barrage in a vertical curve as in* 17, *so that the structure would assume a more sculptural shape and echo the predominant land-forms.*



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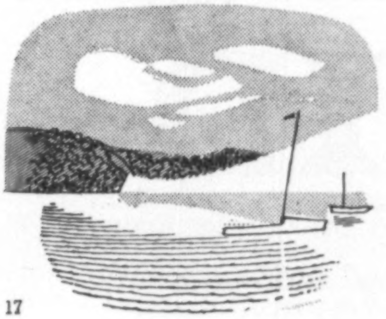
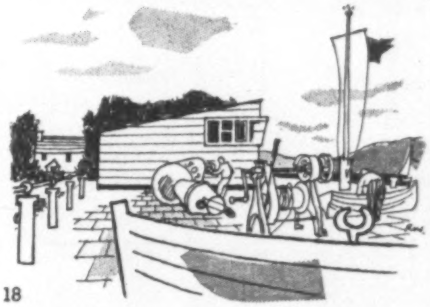


17

continued from page 262]

By separating the two distinct functions of the waterway—the salt water zones from the fresh, the shipping channel from the pleasure streams—it could distinguish the essential characteristics of each. The area above the barrage, used as a yachting centre, would add both a functional and a visual asset to the region, and the cost of the necessary improvement to Lawrenny Quay itself need not be great—in fact anything too ambitious would be overdoing it. Yet some improvement is undoubtedly called for. The functional treatment of waterfront places is usually so trim, so intrinsically decorative, that it is difficult to see how Lawrenny Quay could be so untidy, so depressing and unattractive as it now is.

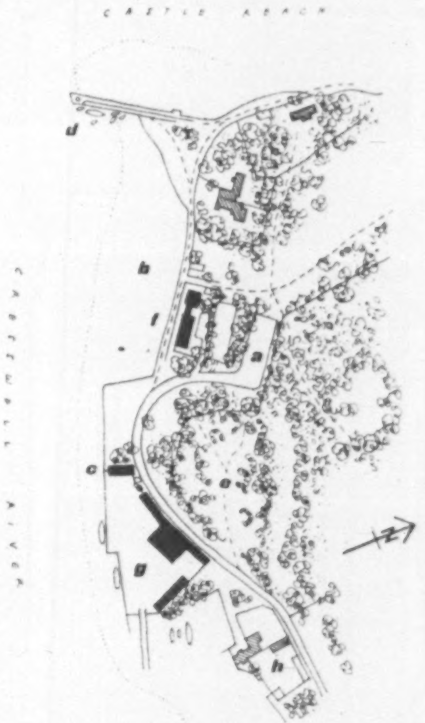
All that is needed, however, is a grasp of first principles: how to reduce a scene to its essentials—in this case flat surfaces and clean edges with clear definitions of function. With a good eye for the natural decorativeness of objects, particularly nautical objects, the job almost does itself. Post and rail instead of wire netting, one or two simple buildings instead of the jumble of shacks, sheds, caravans, and nissen huts, 10 (opposite), and it could be turned into an attractive incident at the water's edge, 18.



18

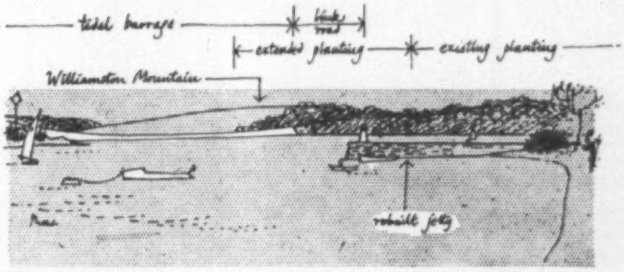
In fact the present shortcomings have not gone unnoticed by the owner, who commissioned Neville Conder in 1955 to draw up a master plan for the Lawrenny Quay area and suggest some guiding principles to assist development that, if carried out over a period of years and at the hands of different interested parties, would result in a well integrated and smoothly working 'place.'

This scheme, treating the place as one of punctuative importance in the National Park—'a colon rather than a full stop'—envisages no more than a stronger and more articulated version of what already exists. The strongest recommendation is for the reconstruction of the outer jetty (its ruins appear in the foreground of 6, page 263). And although outside his terms of reference, Conder—in passing—suggested that an extension of the present wooded area over part of the Williamston Mountain on the opposite shore would do much to improve the main outlook from Lawrenny Quay.



19, *the plan by Neville Conder for redeveloping Lawrenny Quay. (a) car-parks, (b) public open space, (c) public conveniences, (d) public landing-stage, (e) caravan and camping site, (f) hotel, (g) yacht station, (h) existing private houses.*

The coming of the tidal barrage could help bring this about; 20 below shows the view westward from Lawrenny Quay with a rebuilt jetty in the foreground and the present planting extended so as to grip the end of the barrage and camouflage the link road.



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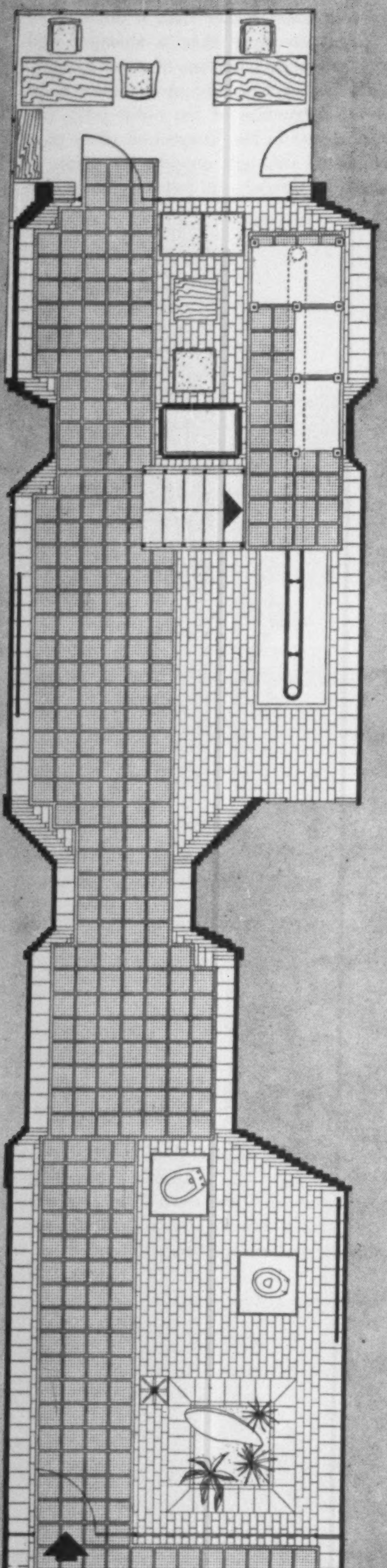
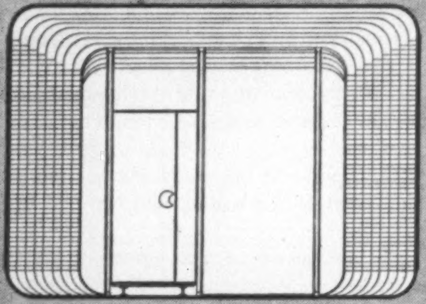
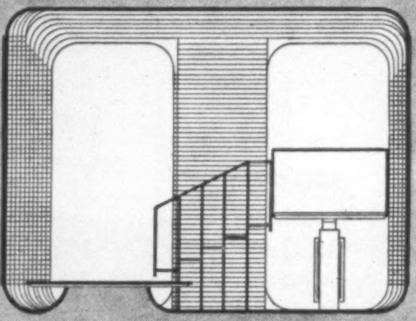
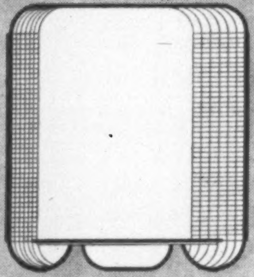
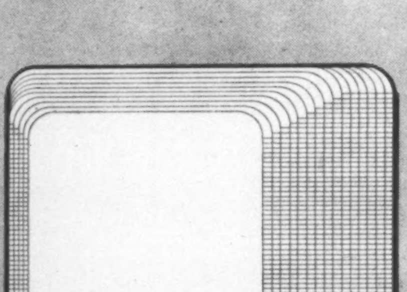










showroom in Rome

designer : Hilda Selem
(of V. F. & L. Passarelli)

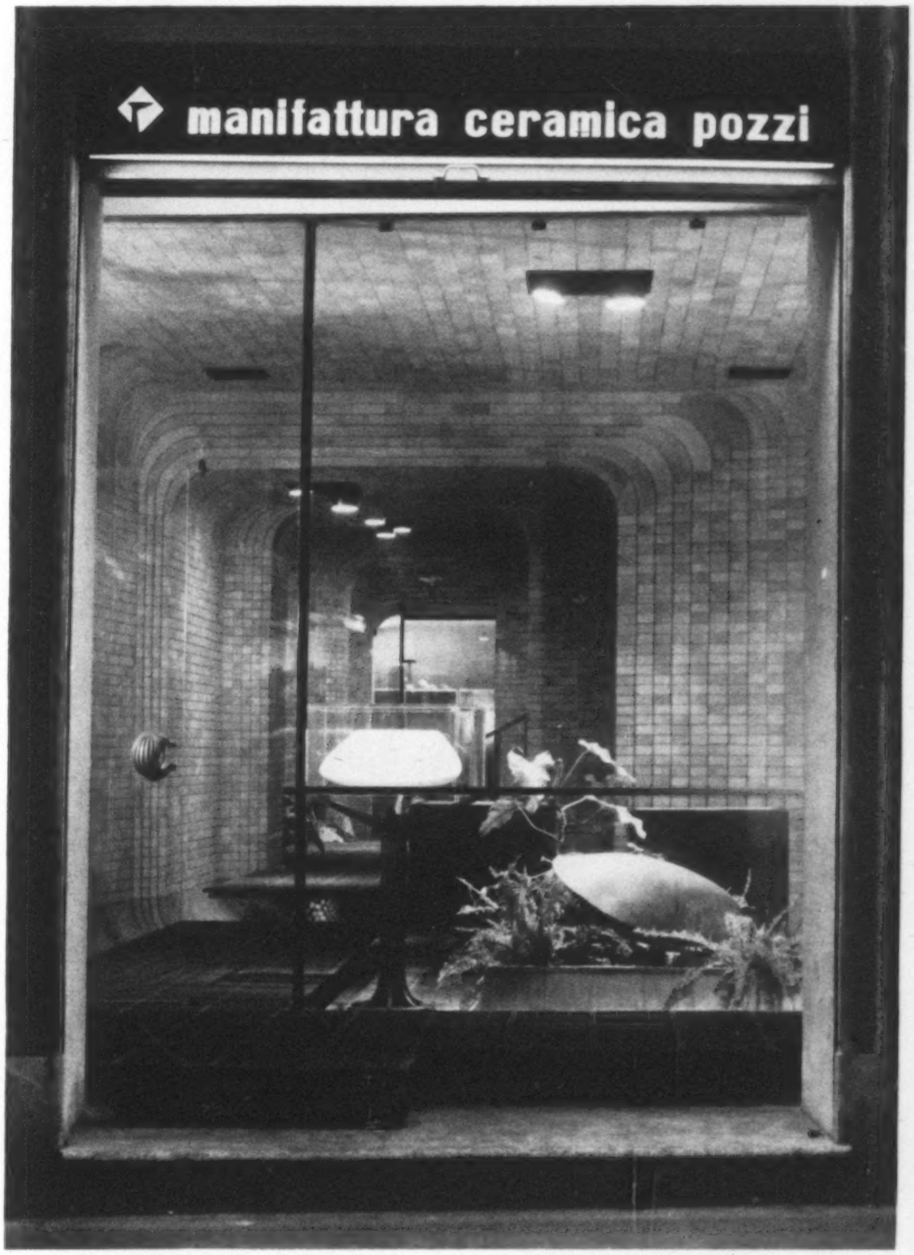
Both the interiors illustrated this month are fitted into deep spaces in existing buildings, both gain much of their effect from the use of well-detailed industrial materials—but there the resemblance stops.

Hilda Selem's showroom in the via Condotti, Rome, is a complete break with the superficial fashion-mongering of even some of the best of recent Italian shop-interiors. As the photographs on the next two pages show, and as the plan and sections on this page explain, the design is a continuous space-tunnel of complete structural integrity—it widens and narrows to avoid the existing structure of the building, but it remains everywhere aloof from it and nowhere allows its presence to be seen. Indeed, there are no visual outlets at all (the ends excepted) from the completely homogeneous and continuous membrane that surrounds the visitor on all sides—but remains aloof from him, too, since he stands on a raised iron walkway.

The effect probably suggests to the visitor the interior of a kiln, such as those in which the proprietor's products are fired, but, is, in fact, a pure creation in its own right.

ID

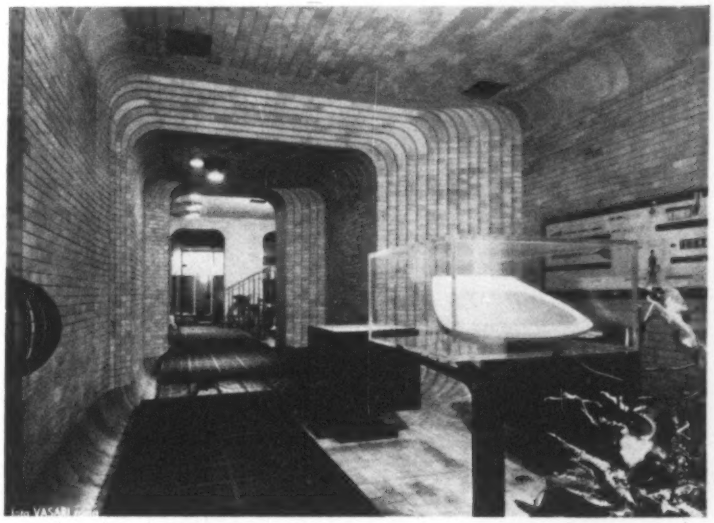
a monthly review of interior design



1

1, the entrance from the via Condotti ; the interior proper begins, with some ambiguity, at the glass screen, where the door is marked not by the upright member, but by the metal handle. However, it is clear that the showroom begins at the first step up on to the iron checker-plates of the walkway. The abstract sculpture by Emilio Greco is intended as a kind of epitome of the plastic and tactile qualities of the products displayed.

2, 3, two views of the interior, looking from the front and back of the showroom respectively. The visible surfaces of walls, floor and ceiling are all of standard refractory bricks, with specials to accommodate the curved coves, and the height and width of the section is varied always by an exact number of bricks, as can be seen in the sections, opposite.



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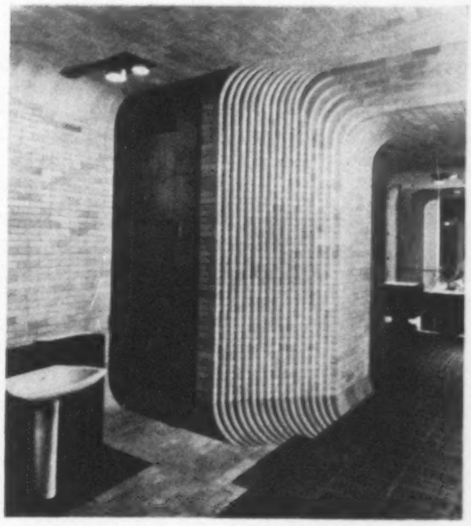

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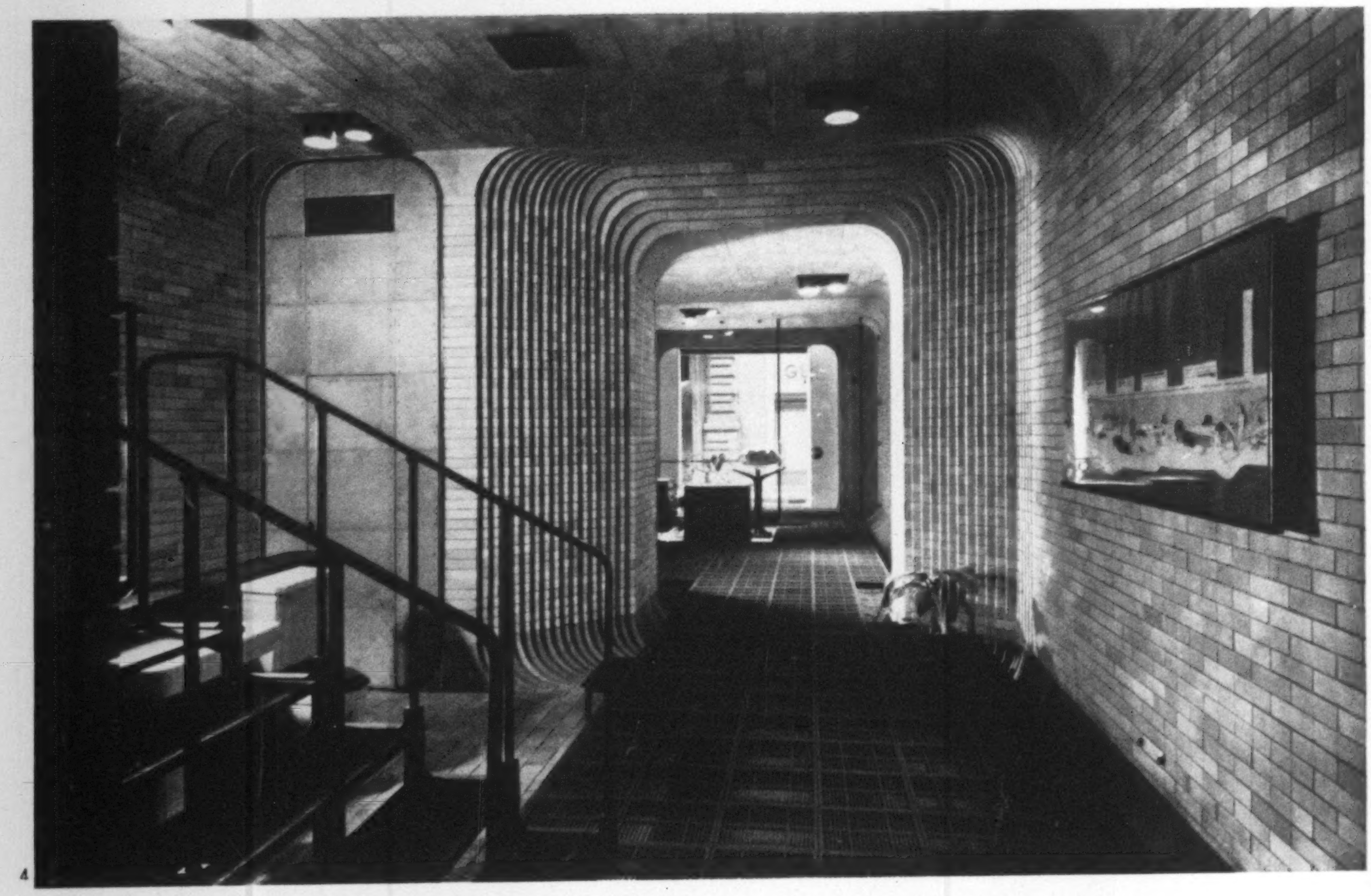
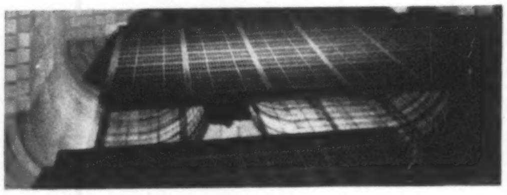


4

4, the full length of the showroom, seen from outside the small office at the back. The lighting, for obvious psychological reasons, grows in intensity toward the back, and is entirely derived from the black-painted fittings which can be seen recessed in the ceiling. The stairs, left, ascend to a platform where kitchen fittings are displayed ; underneath—and just visible behind the stairs, but see also 3 on previous page—is a conveyer-belt device which constantly circulates the proprietors' range of bathroom fittings into view. 5, detail of the step in the walkway at the entrance to the narrowest section (see also 3, on previous page) showing how the coving bricks are used to form a raised support.

showroom in Rome



5

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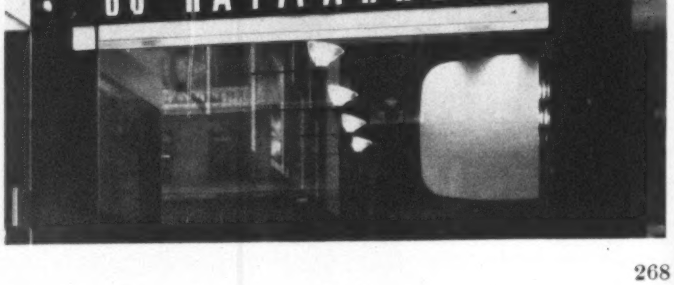
architects : Charlotte Perriand and Ernö Goldfinger

travel agency at

Although the greater part of this tourist information office for the French Government, in the Haymarket, London, is executed in wood, the façade consists simply of large areas of glass carried in especially carefully detailed rolled steel joists. 6, the lintel over the street door.



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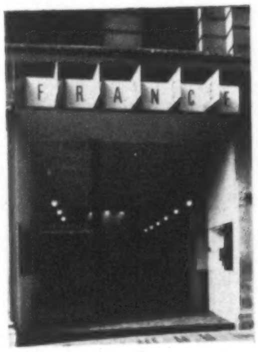

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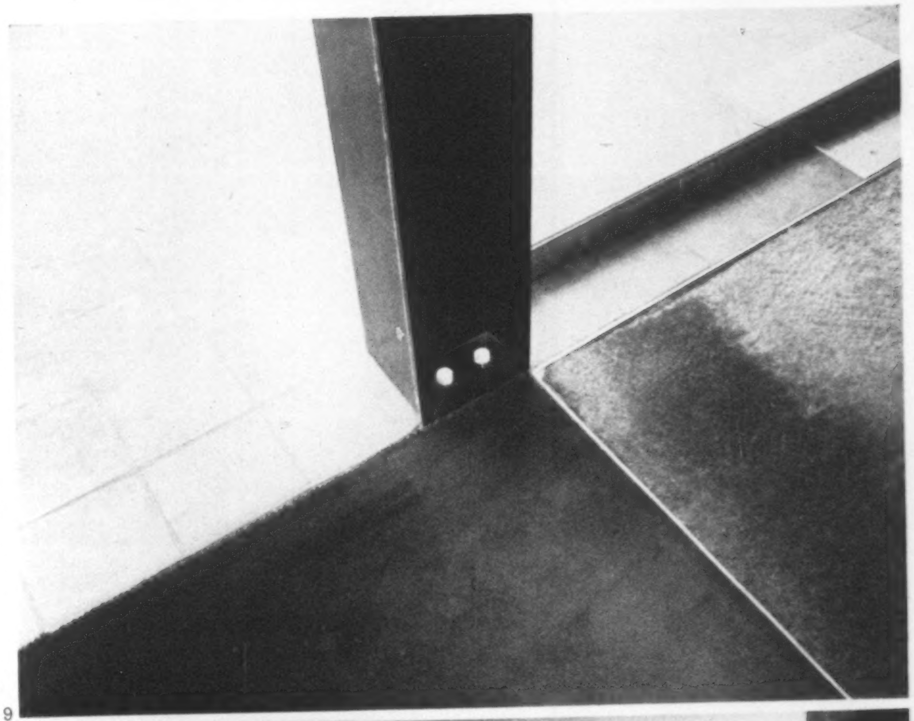
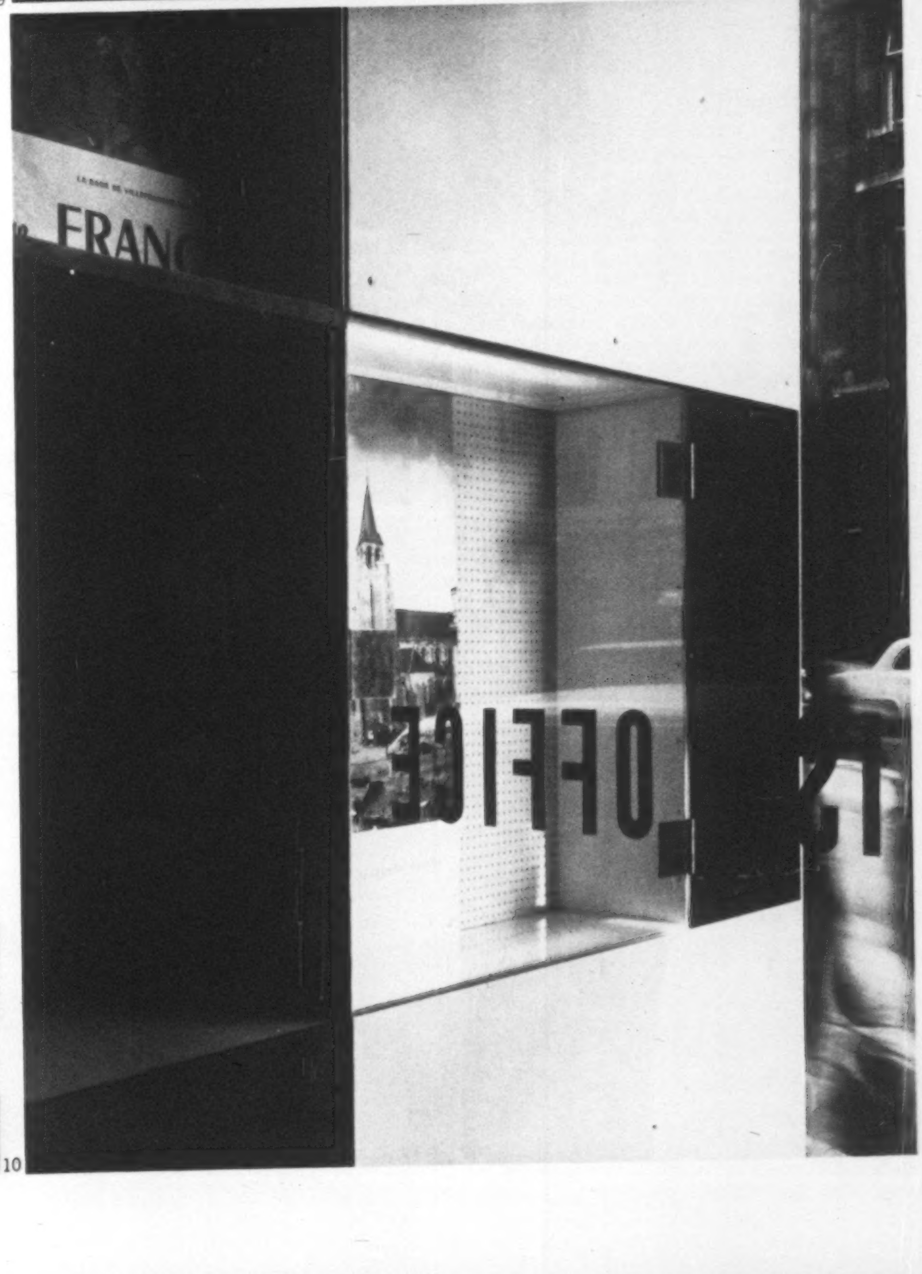


9

7. the exterior, seen from the Haymarket; the façade consists solely of the main window and the fascia above, with the word *France* lettered out on the sides of the projecting fins as well as the 'metopes' between them.
8. the interior from the entrance, showing the main desk, the upper side walls panelled out for the display of standard posters, and the screen for the back-projection of travel films.
9. much of the interest of this scheme lies in the 'secret detailing' of the glass façade, and a very French scrupulousness towards the dimensions of the components. Here, as will be seen, carpet, door-mat, glass, floor-tiles, RSJ and door, meet with the minimum of intermediate details—the glass is secured by a capping-strip on the flange of the RSJ, and without a single tile being cut.
10. the continuance of the voids of the internal display boxes into the flank walls outside the glass front, and the secret detailing of the junction of glass with structure creates an ideal visual fusion of inner and outer space, the point of transition being more clearly marked by the lettering on the glass than by any constructional element.



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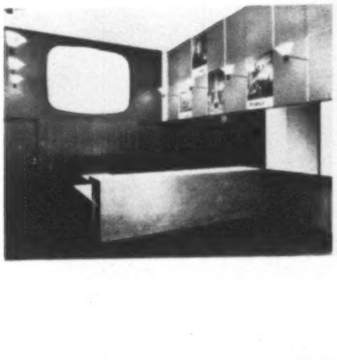

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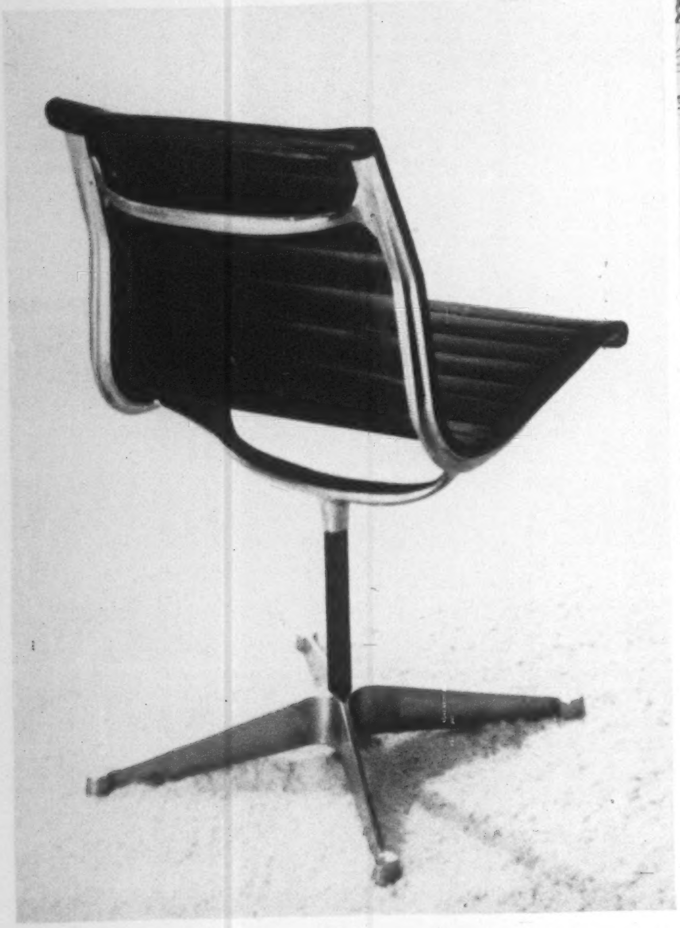

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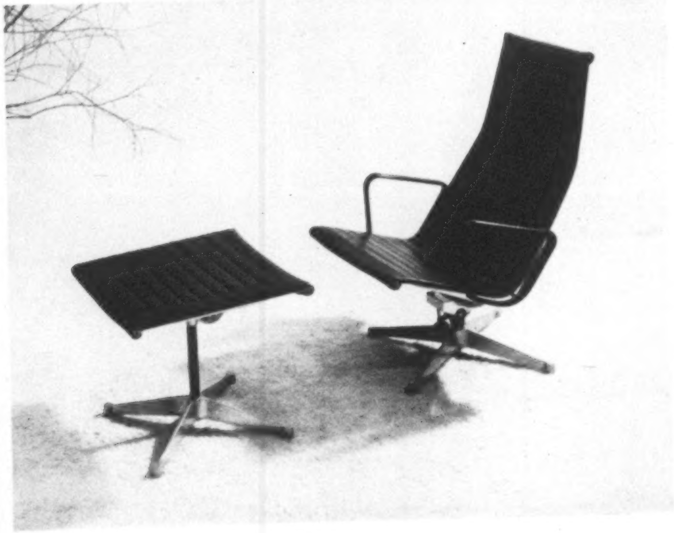


2

DR

design review

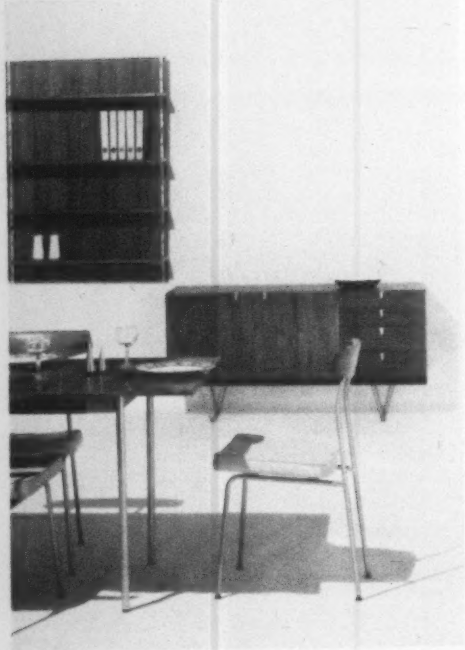
now in production

Two long-awaited developments in the field of serially produced furniture were revealed at this year's Furniture Exhibition, one in the luxury class, one at the less expensive end of the price scale.

1, 2, Charles Eames's Leisure series of aluminium-framed chairs, are now to be manufactured in England by Hille of London (as are all other Eames's designs available over here). Prices for these extremely elegant pieces are high—the dining chair, 1, costs £37 5s. 0d., and other prices range up to £60 for the recliner above, 2—but not exorbitant for work of this class.

3, 4, a new range of dining-room equipment by the Stag Cabinet Company, to designs by John and Sylvia Reid, including sideboards and storage units, shelving, three different tables, and chairs. The materials are oiled teak, with leather upholstery and satin finish steel legs, prices range from £8 15s. 0d. for the chair to £26 for the sideboard shown in 4, and a related series of bedroom furniture has also been announced.

3



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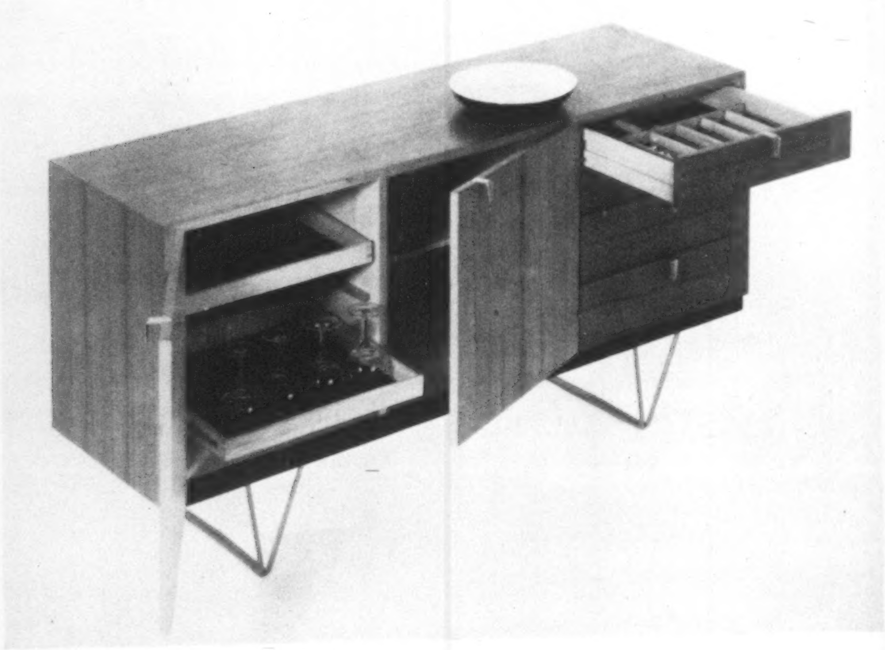


PETER FERRIDAY

PROFESSOR MOORE 1840-1930

Our opinions and feelings in matters of taste have obscure origins. Some at least can be traced back to influential teachers, but the teachers derived some of their own opinions from sources not familiar to us. Perhaps the most read and persuasive of modern English architectural teachers took some of his doctrines from an American academic whose interests were mainly antiquarian. It is hoped that in the course of this brief study of Professor Moore the name of the English teacher will be easily surmised.

Charles Herbert Moore was born in New York in 1830. He trained as an artist, was patronized by Charles Eliot Norton and taken by him to be an instructor at Harvard. His career there was successful, he became the first Curator of the Fogg Museum. Professor Moore visited Europe, made the acquaintance of Ruskin, inspected the cathedrals, and read his Viollet-le-Duc. In 1890 he set down his findings in *Development and Character of Gothic Architecture.*

In the preface Professor Moore warned his readers: 'The main conclusions of the book may, I fear, be unwelcome to many English readers who have regarded Gothic architecture as a no less English than continental product.' All the English critics were in error—none of them had laid hold of the 'ruling principle' of Gothic. But Viollet-le-Duc had done so. 'He has shown that Gothic architecture came into being as a result of the development of a new constructive system of building. A system which was a gradual evolution out of the Romanesque; and one whose distinctive characteristic is that the whole character of the building is determined by, and its whole strength is made to reside in a finely organized, and frankly confessed, framework, rather than in walls. This framework, made up by piers, arches and buttresses, is freed from every unnecessary encumbrance of wall, and is rendered as light in all its parts as is compatible with strength in a system whose stability depends not upon any inert massiveness, except in the outermost abutments, but upon a logical adjustment of active parts whose opposing forces produce a perfect equilibrium. It is thus a system of balanced thrusts, as opposed to the former system of inert stability.

With that admirable statement of Viollet-le-Duc's position Professor Moore traced the development of Romanesque into the Gothic of the Paris region. The shafts rise from the floor, have capitals functionally related to the vaulting ribs, the vaulting conoids are narrowed at the wall by the stilting of the longitudinal arch over the windows, the flying buttresses are developed, and so on. The walls withered away and all is left logical adjustment of active parts. There is 'constructive propriety' in it all. The logical mind of Professor Moore saw the logic of Viollet-le-Duc's explanation, which revealed the logic of the French mediaeval builders. This was all very acceptable but what followed was not.

If that was what Gothic was, if Amiens was its embodiment, what of English 'Gothic'? The Professor went rapidly through the English cathedrals to see how they conformed with his lucid definition. Lincoln choir 'contains all the essential parts of a Gothic edifice, but they are so treated that a strictly Gothic result is hardly reached. That the builders did not possess a clear apprehension of the structural principles of the new style is manifest in many points.' Salisbury was no better though the longitudinal rib was stilted (but illogically allowed to die in the vault); its windows were apertures pierced in a wall and not openings between structural members, its buttresses, indeed the whole structure, were essentially Norman, and its vaulting shafts started from corbels half way up the wall. All Early English was like this; odd approximations here and there to Gothic but nowhere a wholehearted application. The pride and joy of the English antiquarians was damped down. Salisbury, Wells, and Lincoln west fronts were dismissed as 'falsities.' 'Hardly better is the west facade of Peterborough,' the Professor cruelly added. The inverted proportions of the arches were morally, because structurally, wrong, and 'make a very unhappy architectural group.' But surely the polygonal chapter houses would be spared? Not at all—they show 'the same want of constructive logic.' Salisbury's central pier has an octagonal abacus converged on by sixteen vaulting ribs and that won't do. Against the perfectly clear standard of French Gothic English Gothic disintegrated; it became Anglo-Norman with ill-understood Gothic trappings.

It goes without saying that Italian, German and Spanish 'Gothic' were inadequate. 'In France, and in France alone, is the system complete and the development apparent. There alone are the successive steps of change spontaneous and connected, and there only does the inventive spirit of the builders manifest the character of a general movement.' English Gothic is accurately placed. 'For two hundred years after the Conquest the dominant elements in architecture were decidedly Norman. The Cathedral of Salisbury, the nave and transept of Wells, and the Presbytery of Lincoln, among others, are substantially Norman buildings, differing, as we have seen, from buildings of the earlier Norman style in little more than the substitution of pointed arches for round arches, and in the modification of ornamental details. The architecture cannot, therefore, be properly called English. It is strictly Anglo-Norman architecture.'

Professor Moore wrote with admirable clarity and a becoming stiffness. There was a little of the Gradgrind about him but on the other hand he did not go in for sentimental outpourings in the manner of most writers about Gothic. It would be easy to ridicule his views, but before anybody did so they might read his book and then go to look at Salisbury Cathedral. They would, almost certainly, be disconcerted. The Moore argument sinks in and infects. For his contemporaries there was an additional difficulty. They too set great store by Viollet-le-Duc's analysis but had not appreciated until it was so baldly demonstrated by Moore that English Gothic did not live up to its exacting standard. The reviewers were therefore at a disadvantage in trying to frame a cogent answer, more especially as Moore had not explicitly condemned English Gothic but merely classified it (admittedly by inference, among the lower orders. None of the English reviewers was prepared to admit that the Professor's strictures on the English designers had any substance. If the reviewers were intractable they had the excuse that the Professor had been more so. By pressing his assumptions to a logical conclusion he had arrived at something which verged on the absurd. The next step should have been to re-examine his assumptions and this he did not do.

The American reviewers gave the study a good reception. Perhaps Anglo-American antipathy was running high—at all events *The North American Review* was currently (1890) featuring a series 'Do Americans hate England?' The *Atlantic Monthly* was proud of the book and referred to its case as 'the American argument.' The *Unitarian Review* was convinced that Moore had 'fully established that ideal Gothic exists only in France' but conceded that his appeal was more to the mind than to the eye—quite, with reference to the matter in hand, a concession. Russell Sturgis in *The Nation* was more doubtful. He delightfully referred to the English as 'the island builders' which must have warmed the Professor's heart. Of English Gothic not being Gothic he observed: 'Between scholars, it may pass; one purist may say to another that he does not call such work as that Gothic at all, and his remark will be understood, and will not seem unduly exaggerated or inappropriate; but it is hardly safe to say to the public that such a building is not Gothic—hardly safe because not (in the sense that the public understands it) true.' Sturgis also pointed out that some of Moore's misdating of buildings affected his argument.

Very grandly *The Builder* rose to meet the challenge, the disrespect towards the flag. Its first seven columns of the issue of March 15, 1890, were given to the rebuttal. The reviewer (Heathcote Statham ?) was not sure for whom the book was written; if for Americans it was dangerous, if for the English commonplace. In any case it was not suitable for the general public and would subvert public morals—'for if a book like this became popular at Mudie's we know very well that the paradoxical and heretical element in it is exactly what the general reader would lay hold of at once, and parrot about everywhere.' The book put 'undue stress on a single element in architecture.' 'Mr. Moore, self-satisfied and dogmatic as he is in his style of writing, can hardly expect that the world will allow him to sweep away these buildings, and Lichfield, and Lincoln, and Canterbury, and Salisbury, etc., etc., out of the category of architecture (Westminster we observe he gives a grudging kind of allowance to, because it resembles French work to some extent).' The imputation of self-satisfaction was not fair; *The Builder* was more used to uncritical antiquaries and could not accustom itself to the rigour of the Moore procedure. The reviewer then, very cleverly, parodied the method; he defined Greek architecture from famous examples and was able to prove that the monument of Lysicrates and the Erechtheion were not Greek architecture at all. The final attack was high-standard *Builder* of its great days: 'But in its general scope the book seems to be a curious illustration of the admiration for things French, which has of late years taken possession of the American mind, coupled with a desire to "take the shine out of the Britisher." No persons in the same line of business are as jealous of each other as relations; and the feeling seems to be that if Americans have no old cathedrals of their own to boast, it is at least desirable to let "the Britisher" know what poor concerns his really are, after all.'

Building News said that the constructive principle behind Gothic had long been understood by the Britisher; Scott had always recommended the study of French Gothic. If the Professor's views were wrong nevertheless he had written an 'able and clever book.' Charmingly a eulogizing French reviewer in the *Gazette des Beaux-Arts* referred to the author as the 'savant anglais.'

The Professor was not forgotten or forgiven. In a review in *The Builder* in 1896 of a book by Russell Sturgis he made an anonymous appearance. 'We are glad to see, however, that Mr. Sturgis, unlike most American writers on architecture, can recognize the merits of English Gothic, and does not occupy himself in endeavouring to prove that there is no Gothic architecture in England worth taking into account.' Anglo-American relations had not, apparently improved: 'Americans, as everyone knows, do show a great facility in crossing the seas, and some of them are only too prone to teach us everything about our own architecture, and point out all its shortcomings and all our mistakes about it.'

The book went into a second edition in 1899. It drew no more irate reviews. With the publication of Prior's big history of English Gothic, the bad American's name was again invoked. A.E.S[treet] wrote in *The Architectural Review*—the new glossy—'One can picture to oneself Professor Moore rubbing his eyes over the title of this book, and exclaiming, "Bless my soul! Why, I thought I had exploded that myth once for all!" But Mr. Prior is not American, and does not share the American's blind partiality for all things French.' In a review of the same book for the *North American Review* Baldwin Brown also made the same point and added his own little picture of the beauties of English church Gothic: 'In the midst of the greensward rise the gray minster walls, gathering as they pierce the leafage of embowering trees into towers and spires that catch the sunshine.' It was about this time that English antiquaries began the fine game of pushing back the date of English Gothic buildings. Parts of Wells were made to ante-date the French work of Canterbury and so the English appeared to be in the van. Bond was a regular offender of the early-ing Early English school.

Unexpectedly Professor Moore turned his attention to Renaissance architecture and the collision of Viollet-le-Duc's standards and the Orders produced some odd results. *The Character of Renaissance Architecture*, 1905, had moments of comedy. 'Although this great dome has been almost universally lauded, it is entirely indefensible from the point of view of sound principles of construction'—that is St. Peter's. 'Yet with all its mechanical and artistic merit, the scheme is fundamentally false in principle, since it involves a departure from sound methods of dome construction'—that is Florence. 'Nor is it worth while to analyse the spires of these [Wren] churches. Spires made up of superimposed stories with classic entablatures in telescopic adjustment, like St. Bride's, or temples of Vesta crowned with flying buttresses holding up neo-classic tabernacles surmounted by obelisks, like St. Mary-le-Bow, are hybrid compositions of utterly barbaric character, notwithstanding the excellent portions for which they have been justly admired.' The standards of judgment were clearly laid down—one of the admirable things about Professor Moore is this candid explicitness. 'Beauty in architecture may, I think, be almost defined as the artistic co-ordination of structural parts. As in any natural organic form, a well-designed building has a consistent internal anatomy, and its external character is a consequence and expression of this.' 'I think it may be taken as a true principle that architectural ornament cannot be good unless it be an expression of the kind of beauty that we find in organic nature.' 'Noble architecture has always been, and must, I think, always be, mainly a social, communal, and national, not a personal product.' Holding these opinions Classic got a very cool reception.

Not long after this there was a moment of farce in the Professor's career. He retired, much honoured, from his Fogg Museum post and emigrated—to England, degenerate Anglo-Norman England. He built a house for himself at Hartley Wintney and set about his researches preparatory to taking another shine out of the Britisher. *The Mediaeval Church Architecture of England* was published in 1912, and with it the case was completed. Canterbury choir was a French work and the distinction between the English and French workmanship there was dismissed as sentimental nonsense. Lincoln was derived from Canterbury by English architects who only very imperfectly understood what they were doing. The surprise came with the analysis of Westminster Abbey. The Abbey has always troubled the English antiquaries; they have wanted to claim it as English true and through but they have never been able to disguise the fact that it is an exotic. A compromise was hit upon and the perfect formula invented by G. G. Scott, Jr.—'French thought in English idiom.' (Doubly blessed it insinuates.) So the English laid claim to it in spite of the appearance of things. The persistence is extraordinary. When Master Henry, the first master mason, was discovered to be Henry de Reynes an ingenious patriot informed his mourning countrymen that there was a Rayne in Essex so the mason probably did not come from Rheims at all. This antiquaries' zest for saluting the flag did not affect Moore. He cut right through the arguments. The French would not have the thing if you gave it to them. 'A little scrutiny, however, shows that it is not the work of Frenchmen, but of English craftsmen, too strongly imbued with the Anglo-Norman traditions to grasp the French Gothic principles of design and construction.' He supported his case with detailed analysis, and gave no comfort to either party. Moore said that Early English was the best Anglo-Norman style; it was succeeded by a 'florid and ostentatious' manner and then by 'dry and mechanical formalities.' The famed timber roofs were often designed against all true principles of timber construction.

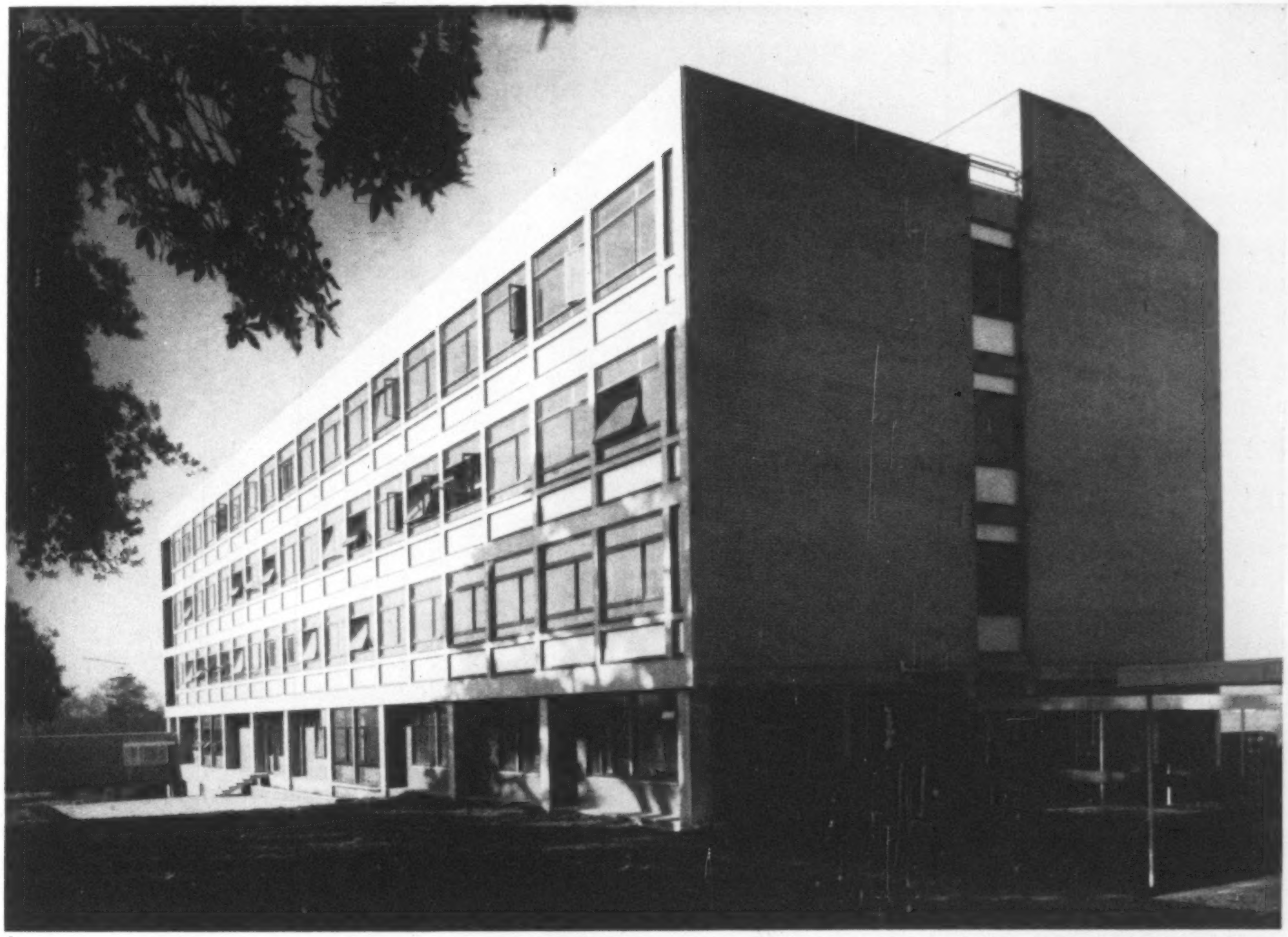
Strangely enough the English did not take this too badly. The worst review was in the American *Nation*; perhaps because the author had emigrated. It mentioned his 'narrowness,' and stated that he is 'constantly misled and misleads his readers.' His mechanical theories were disputed and he was informed that he ignored all the 'charm and loveliness.' *The Athenaeum* dismissed it by reference to Prior. *The Architectural Review* was firm; 'To say that this or that building is or is not Gothic because a certain ratio of voids and solids is or is not maintained in its walls is to treat the most human of the arts as though it were divisible into genera and species like the lower animals are distinguished by the form and number of their molars.' *The Builder* accused him of saying that English 'Gothic' was both an offshoot of French and largely an independent Anglo-Norman growth; 'But Mr. Moore seems to us to be both running with the hare and hunting with the hounds. He sees French influences everywhere present, while at the same time insists that some new and strange style was evolved from the Norman Romanesque, for which he can find no name.'

Professor Moore lived at Hartley Wintney until his death in 1930.

The reviewers missed a considerable opportunity when they decided that patriotism was the best answer to the Professor. His Gothic books were well worth more serious notice and are still worth attention. He had three admirable characteristics, rigour, candour and relevance. He gave earnest consideration to the architectural design and ignored the venerableness, the associational, the lichens. One result of this was an obvious thinness, another just as obvious result, as the acerbity of the reviews shows, was an invigorating sharpness. His candour was a rare quality. He was the first critic to record the inconsistencies and illogicalities of English Gothic—his points may be answerable though probably only by somebody who had radically different ideas of what architecture is and is not. Professor Moore's weakness lay in, having got such strange results from his (Viollet-le-Duc) assumptions, not beginning to re-examine the assumptions. He was a little stiff and humourless. These assumptions were disputed many years ago by M. Pol Abraham and Sir John Summerson (and indirectly many years before that by Henry Adams) but even for someone not accepting them, Salisbury Cathedral is a strange building and the Professor's objections are difficult to get round.

The quotations from Professor Moore must inevitably have called to mind another and more distinguished critic, W. R. Lethaby. Lethaby, besides being one of Moore's admirers, as a man and as a critic, was evidently, in his general views, much influenced by the American savant. The persistence and popularity of these general views is a mysterious feature of architectural journalism. Lethaby's naturally refined taste was totally at variance with his theoretical asseverations. Perhaps no critic of his eminence has had such a total disability for ordinary, logical thought. His little book *Architecture*, whose going out of print caused such regret in the technical press, is almost entirely an account of the development of constructional methods—the round arch, the pointed arch, the dome, the steel frame. Architecture as anything more than constructional innovation was nowhere. The popularity of early nineteenth-century industrial buildings is one of the remnants of the Lethaby cult and confusion. Another architectural critic wrote that architecture was the creation of forms; 'Forms that signify not physical desiderata such as convenience, cleanliness and cheapness, but spiritual desiderata—harmony, wonder, gaiety, awe.' No-one, of course, knew this better when face to face with a building than Lethaby, but no-one did more to bring the full significance of architecture into disrepute than he did in his theorizing. He was giving civil engineering another name. Professor Moore was much more single minded than Lethaby. The attention he gave to the cathedrals was solely that of the civil engineer. The lucidity with which he did this makes his studies valuable, but the harmony, wonder, gaiety, awe of architecture were absent.

current architecture recent buildings of interest briefly illustrated



1

1, the main teaching block from the east.

TECHNICAL COLLEGE AT BROMLEY

ARCHITECTS: GEORGE, TREW AND DUNN

in collaboration with E. T. Ashley Smith, County Architect

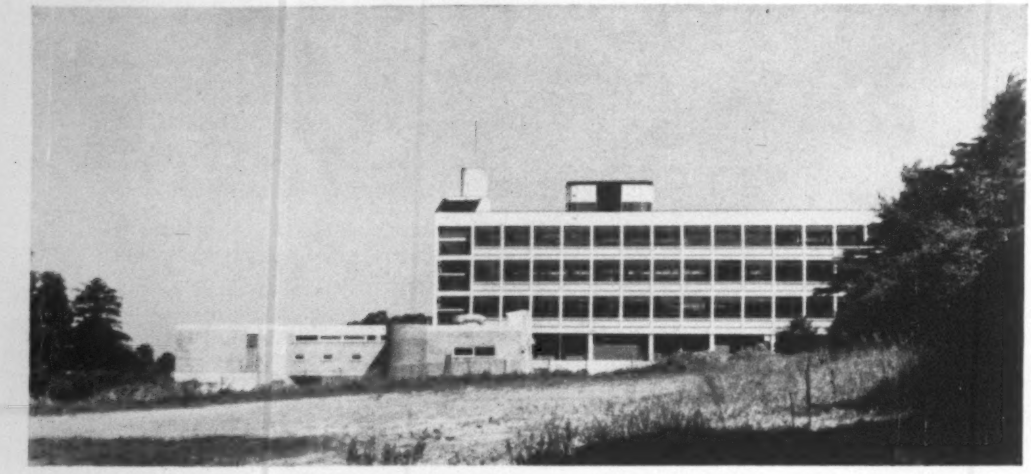
The college stands a mile south of Bromley, adjoining the Bromley-Sevenoaks road. The buildings illustrated form the first stage and include the departments of engineering, commerce, science and domestic science, as well as the dining hall and assembly hall. The main four-storey teaching block is linked by a covered way to a single storey workshop and by bridges to the assembly hall and dining hall. The administration and common rooms are on the ground floor.

The main block has a precast and in situ concrete frame with prestressed floor beams. The ground floor is faced with blue engineering bricks, behind fair-faced reinforced concrete columns; the upper floors are clad in precast concrete slabs with a white Norwegian spar finish, with glass infill panels below the windows. The end walls are of white sand lime bricks and the roof is of asbestos tiles. The workshop block has a welded steel roof frame and monitor lights on load bearing brickwork. The block is faced with grey sand lime bricks with painted asbestos fascias, and there is a continuous band of patent glazing.

The assembly hall has grey brick infilling and timber windows, and a felt roof finished with spar chippings.

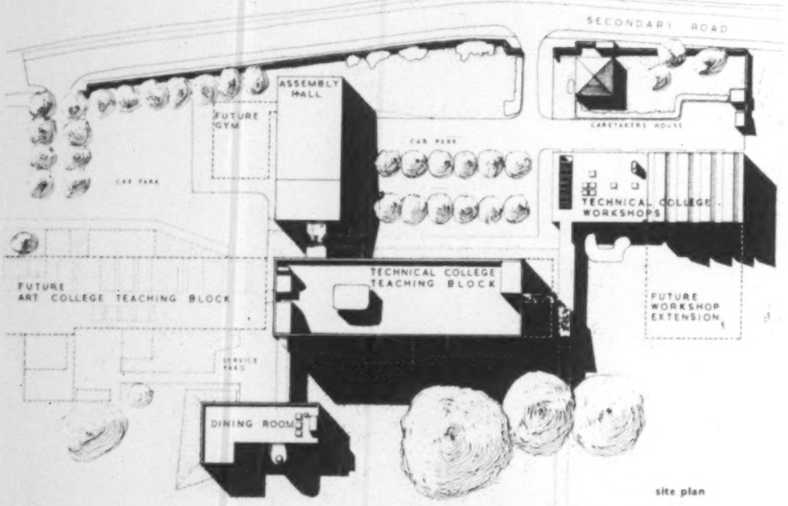
Floors are of composition blocks generally, with pvc tiling in the science laboratories and sprung

2



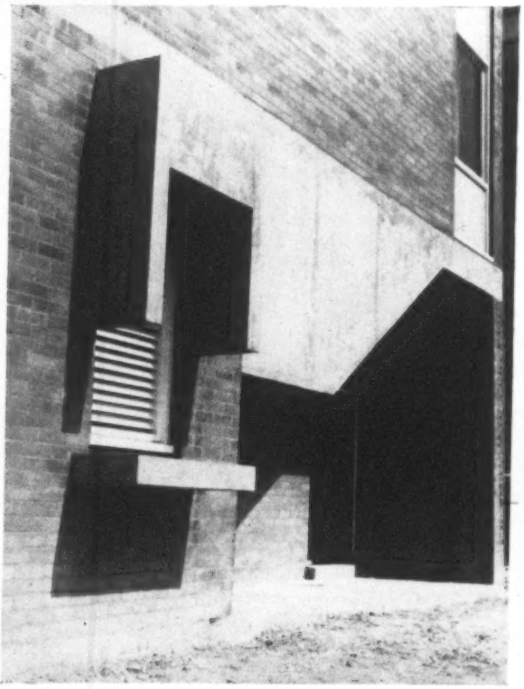
2, the main teaching block with the dining hall in the foreground, seen from the playing fields.
3, detail of the ventilation intake to the assembly hall.

Technical College at Bromley

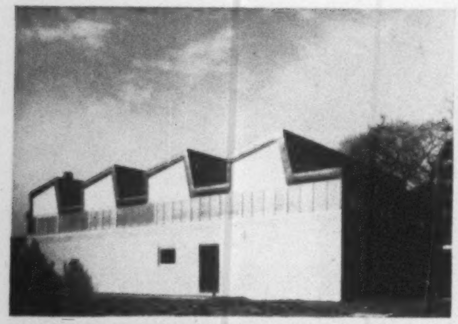

SECONDARY ROAD
ASSEMBLY HALL
FUTURE GYM
CAR PARK
CAR PARK
CARETAKERS HOUSE
TECHNICAL COLLEGE WORKSHOPS
TECHNICAL COLLEGE TEACHING BLOCK
FUTURE ART COLLEGE TEACHING BLOCK
FUTURE WORKSHOP EXTENSION
SERVICE YARD
DINING ROOM

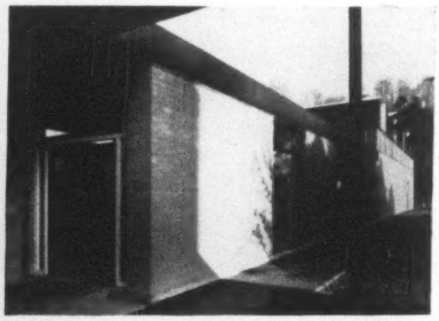
site plan

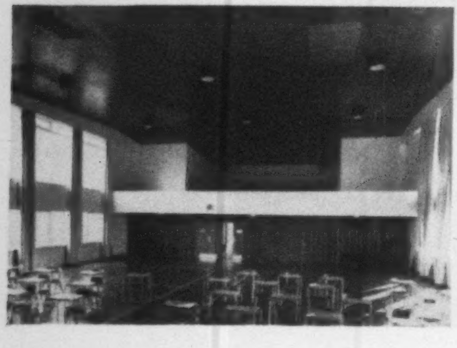
3

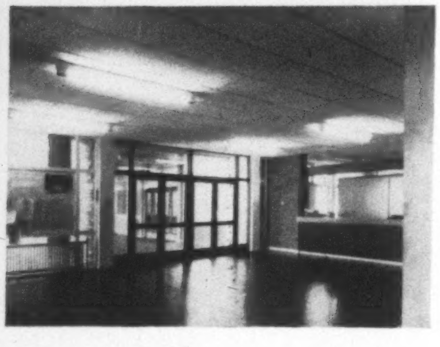


mahogany strips in the assembly hall. Plastering is kept to a minimum and internal corridors are of fair-faced brickwork, while plasterboard partitions are finished with emulsion paint. The stairs in the teaching block have grey and white terrazzo strings and black marbled linoleum treads and risers. The balustrading is of black steel with black marbled linoleum panels and a Honduras mahogany rail.







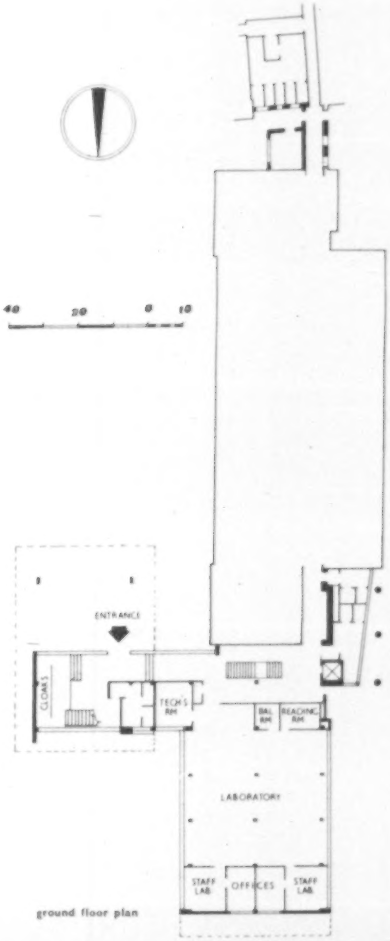


4 | 5
6 | 7

4, workshop block from the east, showing roof construction and high level windows.
5, the entrance to the workshops from the link with the main block.
6, the assembly hall, with fair-faced brick walls and a ceiling of unmatched mahogany ply sheets.
7, main entrance hall and enquiry desk. The ceiling is of fibrous plaster acoustic tiles.

TWO SCIENCE BUILDINGS AT OXFORD

ARCHITECTS: RAMSEY, MURRAY, WHITE AND WARD

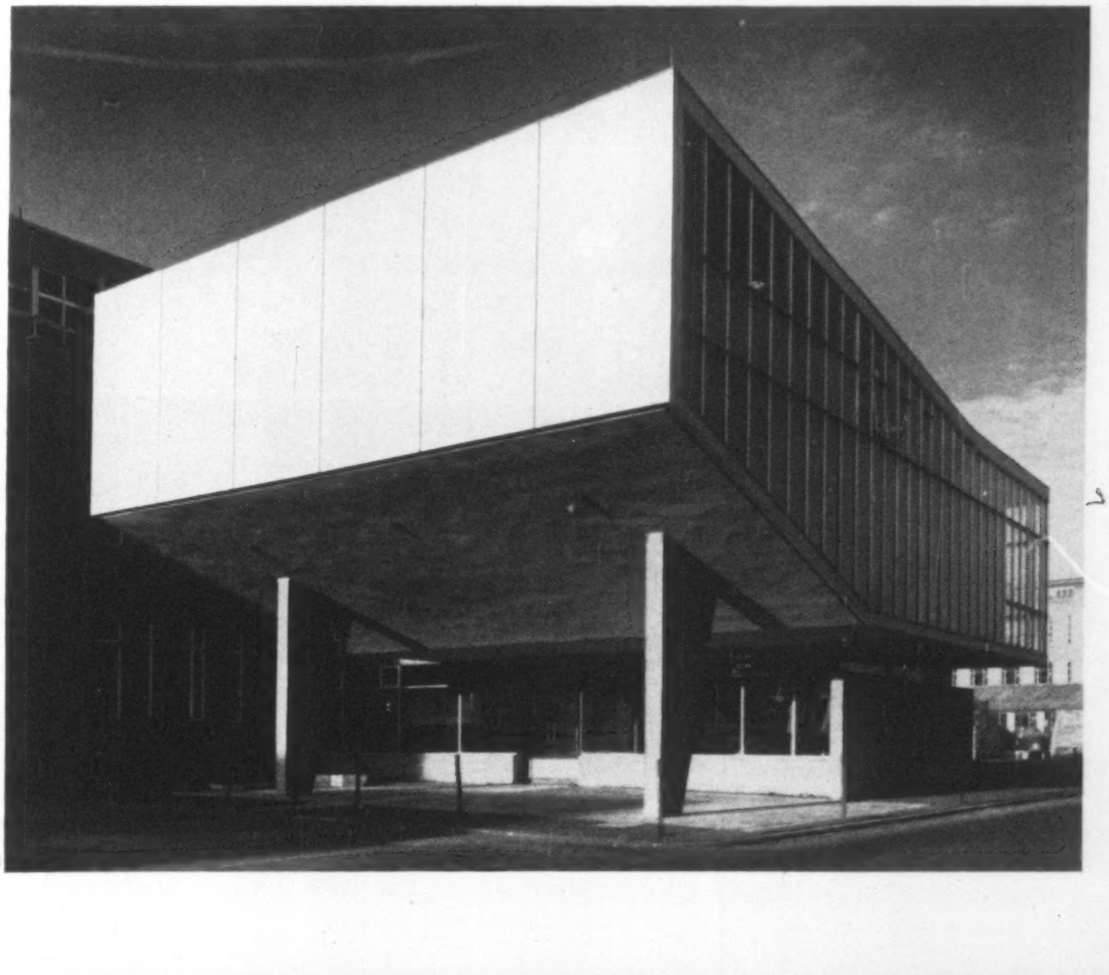


ground floor plan

1, Organic Chemistry Laboratories

The new buildings were needed to provide additional space for research, teaching and offices, and also to form a link between the original Dyson Perrins Laboratory and its later extension. These requirements were met by filling a three-level gap between the old buildings, adding a new floor to one of them and providing a new wing with a lecture theatre at the north end. Alterations inside the old buildings involved centralisation of the main laboratory stores and improvements to internal circulation. The new second floor houses a library and administrative offices, and there is a large storage area in the basement. The lecture theatre and the north wing have reinforced concrete columns, beams and solid slabs. The new floor over the existing building and the link block are steel framed and have wood-wool roofs. In most parts of the building suspended plaster ceilings are used. External walls are built in 6 in. rigid insulation faced with waterproof materials.

Most external walls and fascias are clad with laminated glass fibre panels held by extruded aluminium sections. The external skin of the lecture theatre walls is formed by vertical aluminium patent glazing, using cast glass. Above window cill level the same system is used but with clear glass. Other external materials



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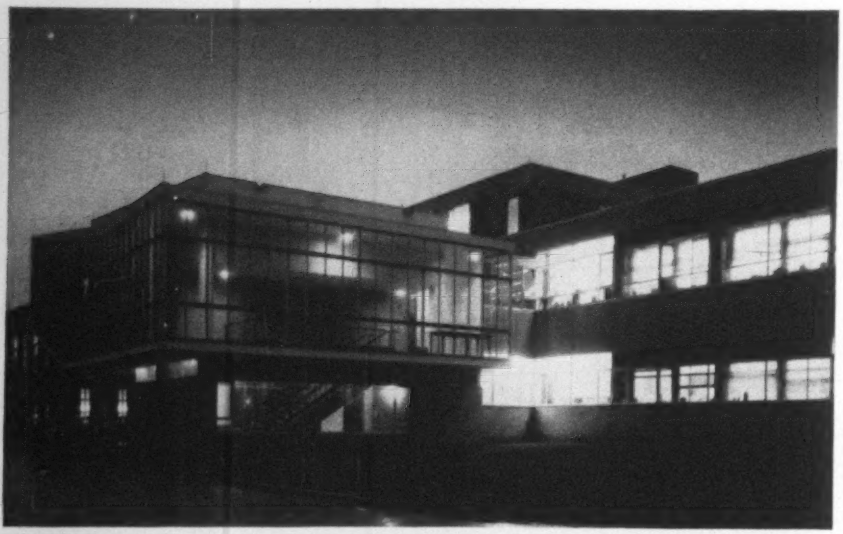
8, the raked floor of the lecture theatre, cantilevered over the main entrance to provide more circulation space at ground level.

include small quantities of facing bricks matching the old buildings, black glazed bricks and white mineralite. Aluminium windows are used throughout. Internal walls are plastered. Floors and skirtings in the laboratories, certain special rooms, libraries and offices are of cork. Other rooms have linoleum floors. Marble tiles were used in the lower foyer to the lecture theatre.

Cold and hot water, vacuum pumps, gas and electrical services are provided. The heating is by means of coils embedded in the plaster of the suspended ceilings. The ductwork of the fume cupboard extract system is in pvc clad in asbestos cement. All runs of services are concealed within vertical ducts and above suspended ceilings. Laboratory services terminate in a specially designed group of outlets distributed along laboratory benches.

The theatre is ventilated by means of a forced air inlet and outlet. In addition two powerful extract fans are provided for rapid changing of air between lectures. The plant located over the upper foyer is operated from the control panel in the lecturer's bench. The same control panel includes various signalling devices for communication with stores, laboratory stewards and with the projector operator. Also included in it are controls of the power operated curtains and lights. A similar portable panel duplicating all controls can be plugged in at two other points in the lecture theatre to be used by the projector operator. A blackboard in two halves each about 16 ft. by 4 ft. has been faced with specially treated black formica and is electrically operated from a number of points along its length.

Organic Chemistry Laboratories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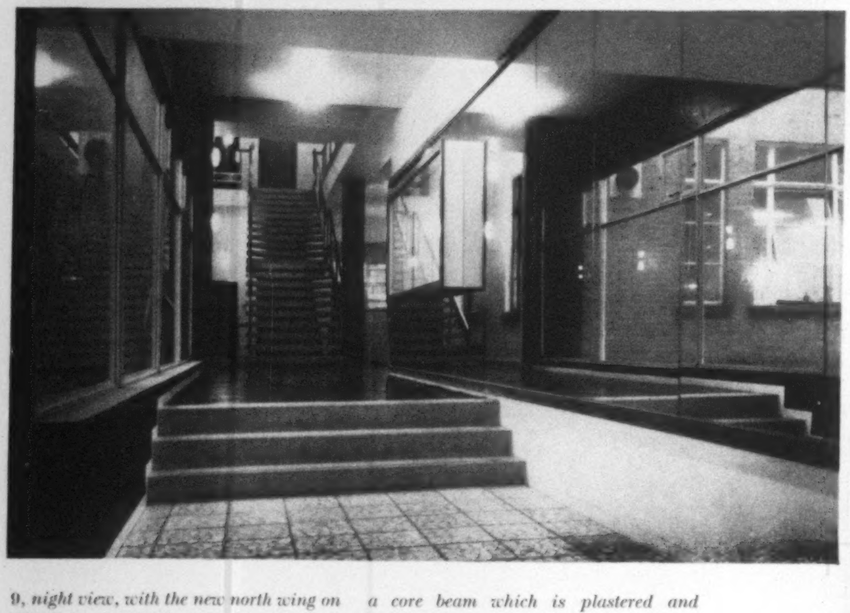
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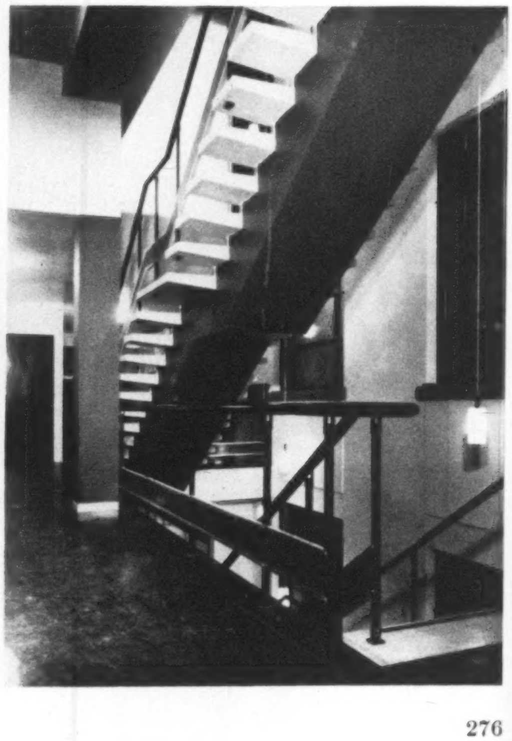
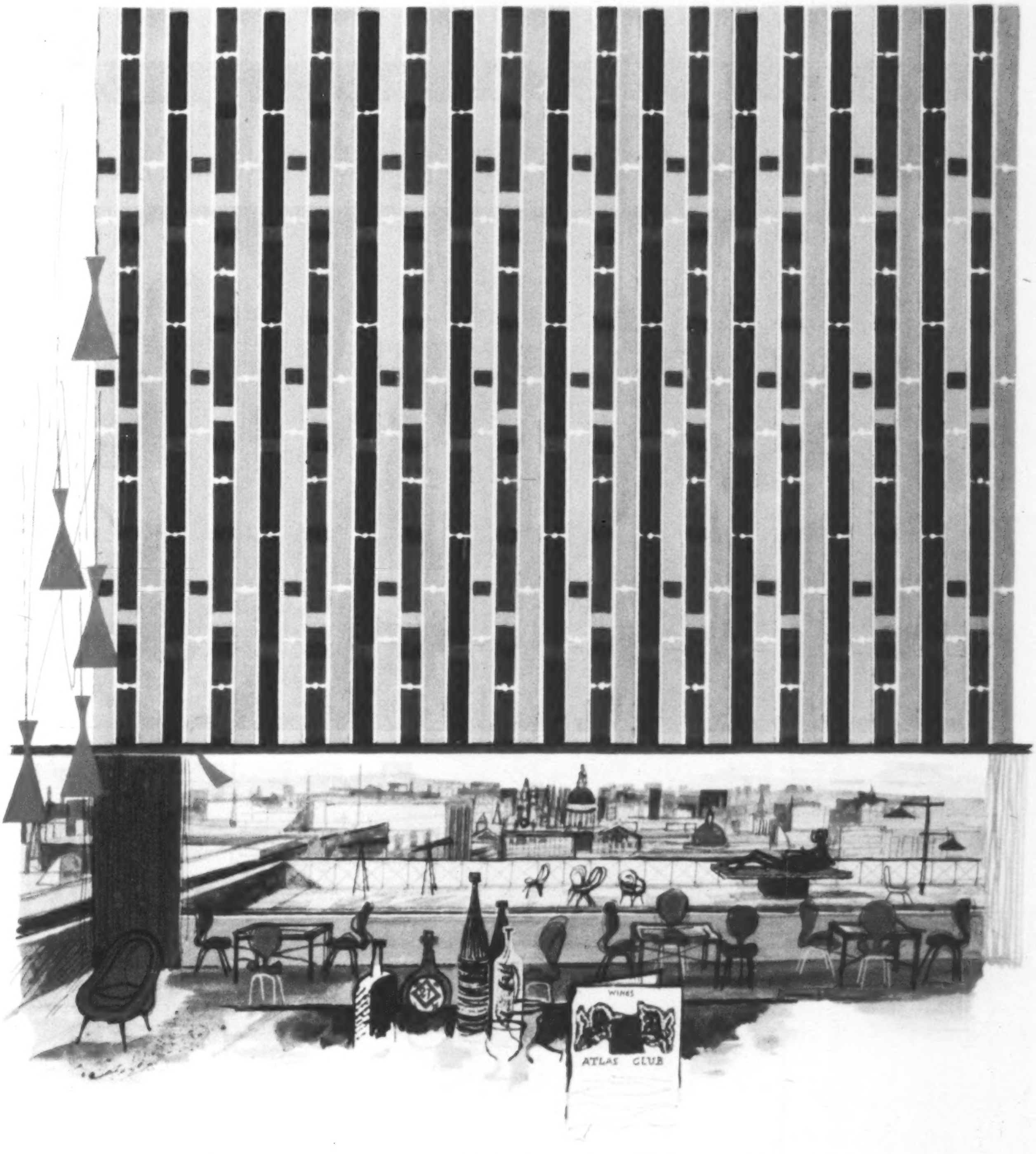

12

9, night view, with the new north wing on the right and the lecture theatre in the foreground.
10, the paved entrance court, sheltered by the sloping floor of the lecture theatre, which is carried on splayed columns.
11, the glass-walled entrance hall. The stairs, seen in detail in 12, are carried on a core beam which is plastered and painted dark green. The treads are of grey precast terrazzo with black aluminium inserts. The risers are dark green. The handrail is of black ebonised hardwood carried on square steel sections, and the kneerail is polished mahogany in aluminium channels.



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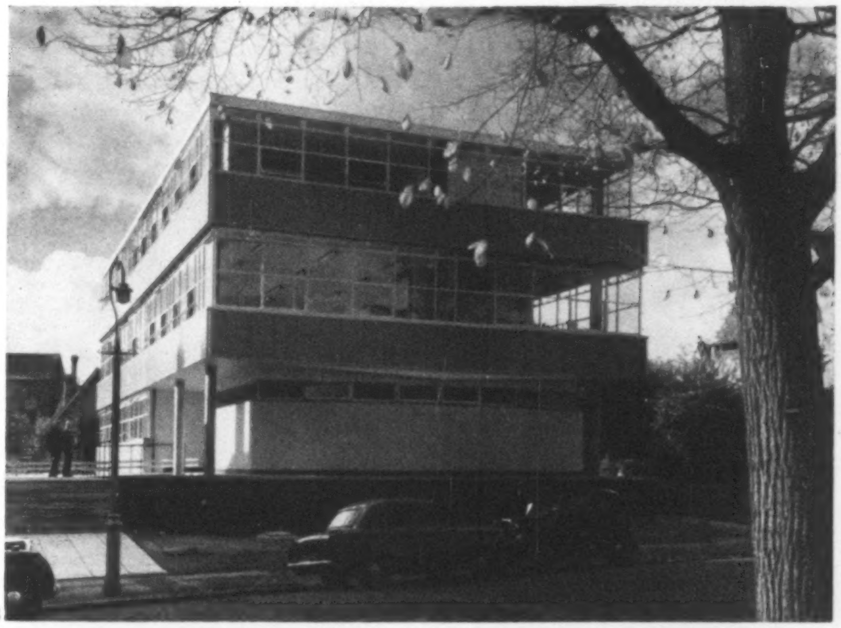
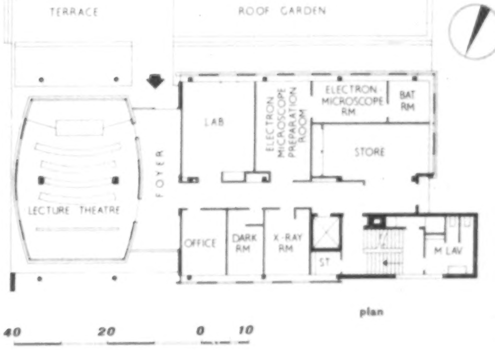
13, the west facade, with the lecture theatre in the foreground at ground floor level. 14, the main entrance beyond the lecture theatre, with the bridge across the ramp which leads down to the workshop.


13

2, Metallurgy Laboratories

This is the first building on the new Science site between Banbury Road and Keble Road, and the plan had to provide a first floor which would connect with the future pedestrian concourse and also allow for future extension to the north. The workshop is in the basement with independent ramped access.

The foundations are a reinforced concrete raft and three rows of columns carrying the concrete floor slabs. External walls of the main block are of 6 in. insulating blocks supporting windows and lightweight external cladding. Basement walls and those of the staircase block are in 6 in. concrete. External walls generally are clad with slightly textured grey laminated glass-fibre panels stiffened at the back with a corrugated sheet of the same material. Free-standing columns cast in cardboard tubes and some concrete walls are left untreated. Internal floors are in muhuhu blocks, walls and ceilings are plastered. Plain concrete walls in the basement are painted. Special plaster was used in the X-ray rooms to reduce radiation. The building is heated by a system of coils embedded in ceilings. Temporary oil fired boilers at the bottom of the staircase block supply the heat.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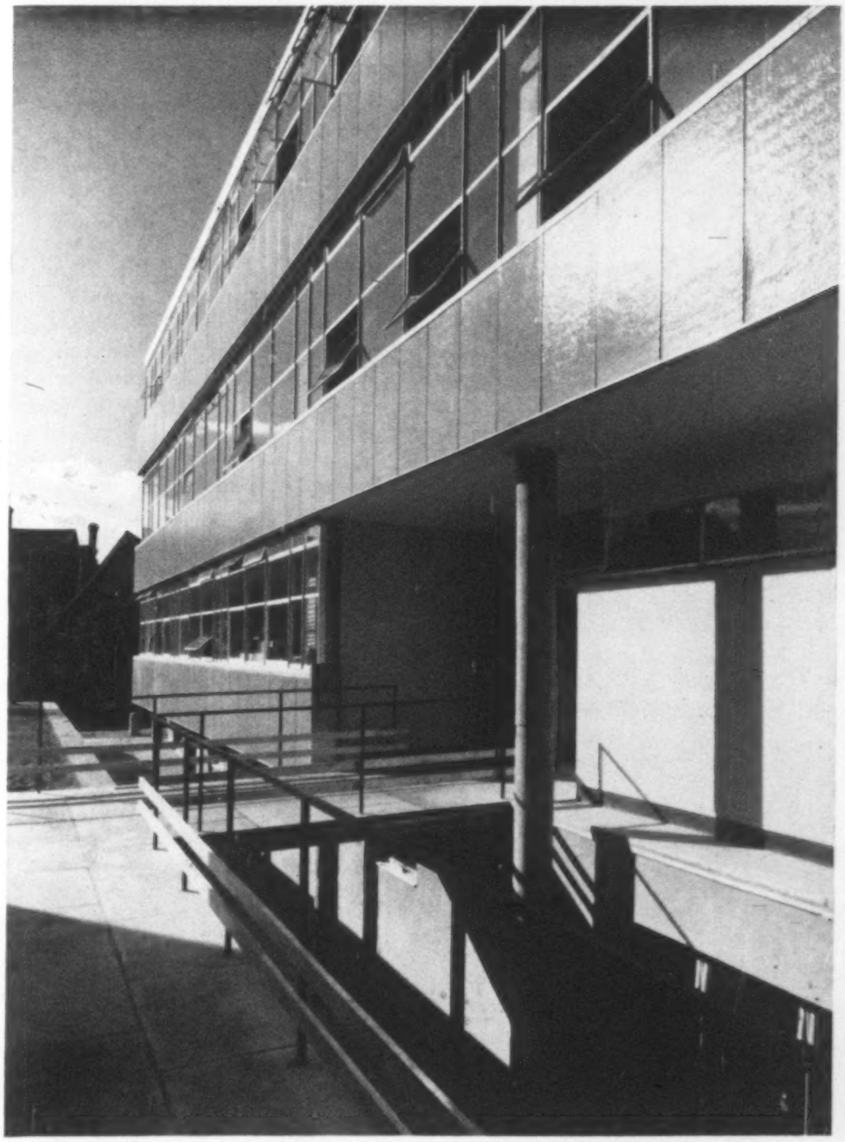

14

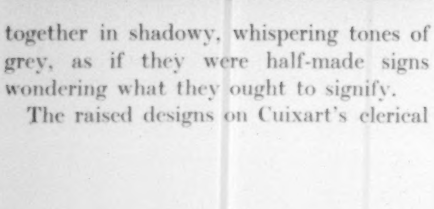
EXHIBITIONS

PAINTING AND SCULPTURE

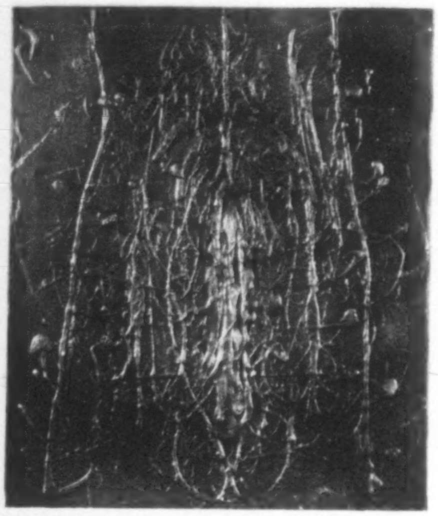
The ten painters selected by Arthur Tooth & Sons to represent 'La Nueva Pintura de España' have all been influenced by School of Paris informalism, but they belong to two distinct groups, and the four painters from Barcelona have little in common with the six from Madrid. The Catalans might be described as 'makers'; they take Dubuffet's *hautes pâtes* as their point of departure, use home-made cements, and construct their pictures rather than paint them. The Castilians, on the other hand, tend to be 'self-expressers'; they use paint freely and make dramatic gestures (Millares is very, very dramatic: he wrenches big holes in his canvas, screws up what remains of it, drips blood-coloured paint from the edges of the holes and produces abstract illustrations of criminal assault.)

The work of Tapies and Cuixart (Barcelona) and Lucio Munoz (Madrid) cuts across the group interests and rivalries. These three are obsessed by walls. They make walls to hang on walls; old, dirty, broken walls to hang on clean, new, smooth ones; walls which bring to mind alleyways, prisons and crypts, ideal for contemporary drawing rooms. Yet although there is no gainsaying that they are using a fashionable idiom, and that their work is in demand as delectable decoration, they are somehow different from the run of artists who go in for this kind of sophisticated crudity; they are more austere and circumspect, more sombrely elegant and purposeful.

The walls made by Munoz bear shapes like ancient damp stains, 1: they cluster together in shadowy, whispering tones of grey, as if they were half-made signs wondering what they ought to signify.

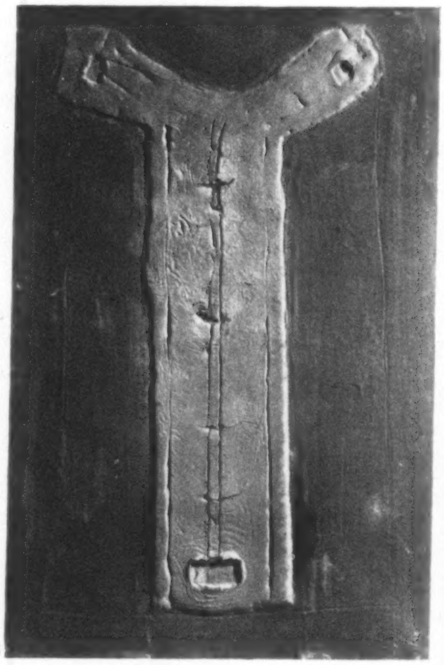

1

The raised designs on Cuixart's clerical grey slabs look a bit like clumsy-clever attempts to achieve a delicate intricacy with unsuitable tools. They are to some extent brought about by controlled accidents, yet it's clear that they are the work of someone profoundly intimate with the intricacies of church ornament and Christian symbolism, 2. They are filled with a queer, muffled exaltation, and seem—even more poignantly than Munoz's stain-shapes—to be frustrated signs.

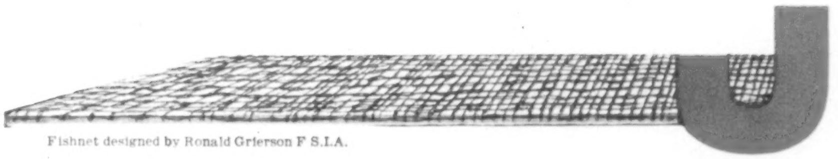

2

Cuixart makes these raised designs by squeezing long worms of paint straight from the tube and letting them lie undisturbed on the surface. This use of paint seems often to have a rather squalidly onanistic significance; but there is nothing of the exhibitionist about Cuixart and I feel sure that he is not pretending to be an inexhaustible fountain of vitality. He dusts the paint with metal powders, which gives his surfaces the gleam of gold in dark places, and he seems to be attempting to allude to sacred ornament in terms of a mysterious 'appearance' or 'manifestation.'

I think the art of Tapies throws some light on what Cuixart and Munoz have in mind, and why it is that they have to avoid being explicit about it. I recall a painting by Tapies which was included in a mixed exhibition of Spanish painting brought to London a few years ago by the Arts Council: it was one of the first of those scarred walls which have made him famous; it had a thin surface of grey plaster which was peeling away to reveal a hard, smooth material beneath, and was already a refined and assured example of his decorative informalism, but he added to the bottom of the picture, almost as if it were an afterthought, the black shadow of a priest with outstretched arms, holding up a cross. Up to this point, he was being a good informalist and letting the material speak for itself, but when he put the shadow in, the picture suddenly had a preconceived look, and it would be difficult to say anything more insulting than that about an artist who is not supposed to know where his next mark is coming from. In any case, it was a banal and melodramatic intrusion, and brought the picture down to the level of bad reporting. It compelled one to look upon the break in the plaster not as a collaboration between the artist and his material but as a record of marks made by machine-gun fire, and it left one wondering which side of the Civil War had the artist's sympathies. This work remains an interesting document because it suggests that the artist's obsession with scarred walls arose from the impression made upon him by the evidence of street-fighting and summary executions left on the walls of Spanish towns. But he was careful to keep overt symbolism out of his subsequent work, and although the scratches and breaks in his surfaces disclose a kind of broken-off engagement to sign-making, nothing approaching an explicit symbol appeared in his work again until last year, when he made a picture which he calls a 'metasign', 3. It was one of the most interesting pictures in the exhibition at Tooths' and leaves one with the impression that the shadow of the priest in the early picture was more than an unfortunate afterthought.


3

Tapies' interest in the symbol brings to



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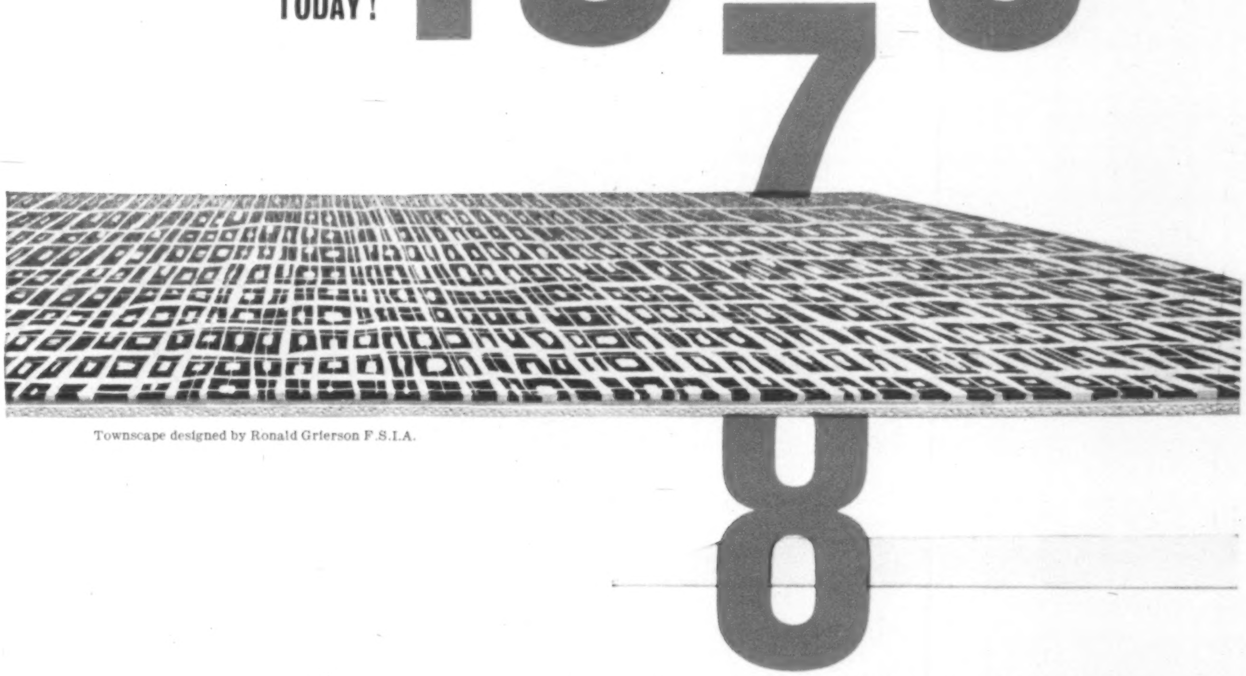

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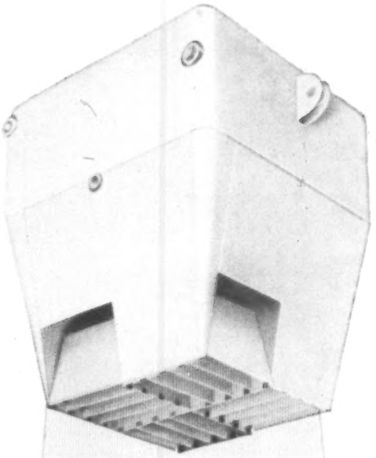

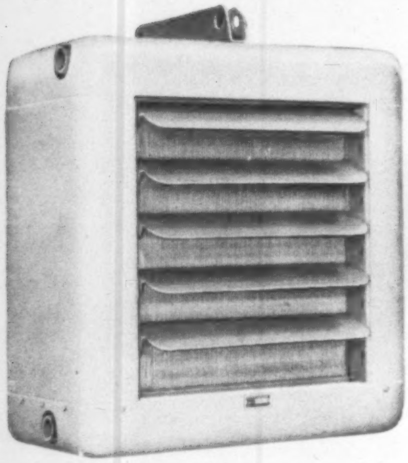

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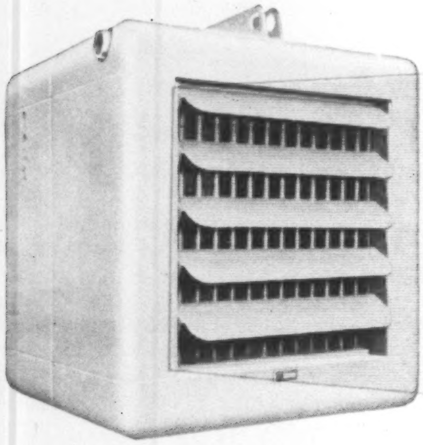

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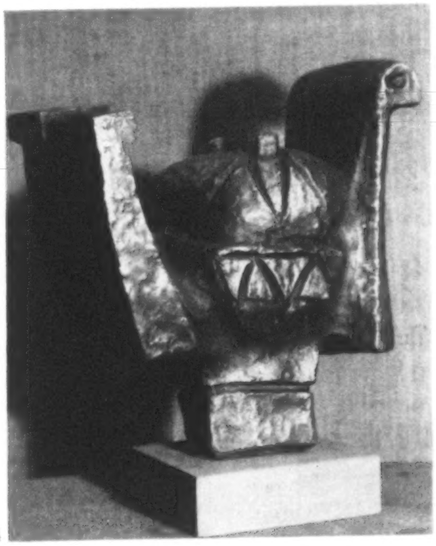
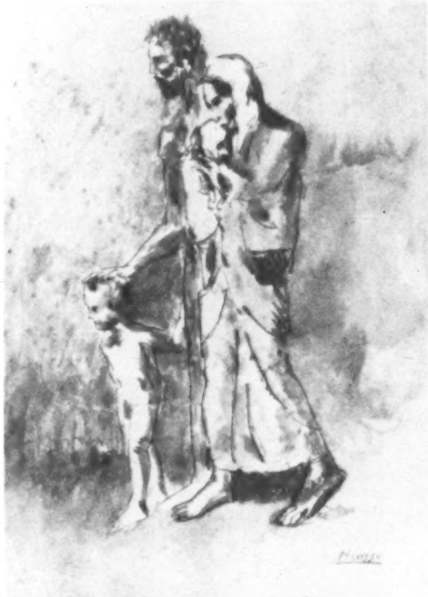
COPPERAD LTD., COLNBROOK, BUCKS. TELEPHONE: COLNBROOK 2521. TELEGRAMS, COPPERAD COLNBROOK mind the art of Malevich. Malevich, after years of geometrical abstraction which now appear to have been a period of spiritual preparation, painted a cruciform shape on a white ground. He was a religious man, and I feel that he intended it to be the mystical fruit of all his endeavours, a bringing into the light of the full meaning and significance of the word 'suprematism' which he had attached to his abstractions. But it didn't work; it was too explicit; it lacked mystery. He had to retreat a little, and make more tentative shapes. The shapes he made were even simpler than the cross, but by giving them the appearance of being involved in the process of emerging he finally attained that sense of the numinous that so triumphantly floods his last white on whites.

Tapies, in his 'metasign' is perhaps groping in the same direction. This 'metasign' is a brick-red form raised out of a grey wall. It is roughly made, and there are all the usual signs of collaboration with the material, although there is necessarily some modification of the idea of letting the material speak for itself. The form appears to be a long narrow gown hanging on a wall by its sleeves; a gown that might be used in rites and observances. It makes remote references to crucifixion and prayer, and its hard, baked, crumbly look makes these references seem even more remote than they are. It is on its way to becoming a cross—but it is because it has not become one that it is moving and powerful.


4

Hubert Dalwood's recent bronzes at Gimpel fils have something in common with the work of Tapies and Cuixart. They are decorative objects and have, at first sight, the look of being frustrated symbols. But they lack tension, and remain too close to the objects from which they derive—compotiers, caskets and so forth—to acquire mystery. He seems to me to be placing too much faith in the transforming power of a rather old-fashioned kind of distortion, and to be trying to make occult objects without being interested in the occult. Sir Herbert Read suggests in an appreciative catalogue note that Dalwood is trying to 'create a magic capable of appealing to our sceptical age,' and I think that he has put his finger on Dalwood's programme, but I think, too, that it will take more than a lopsided version of an orb in its stand, 4, to undermine our scepticism. These objects have immense charm, and considered as decorative units for the modern drawing room are as up-to-date as scarred walls. They have the look, proper it would seem to their period, of being rough copies by a barbarian of the artifacts of a higher civilization, but he plays the part of barbarian a little too smugly for my liking.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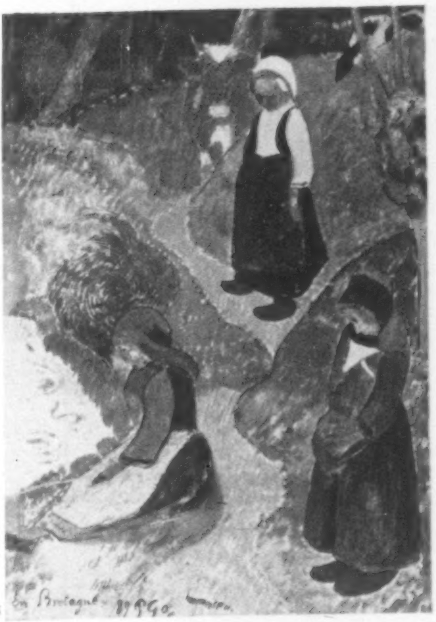
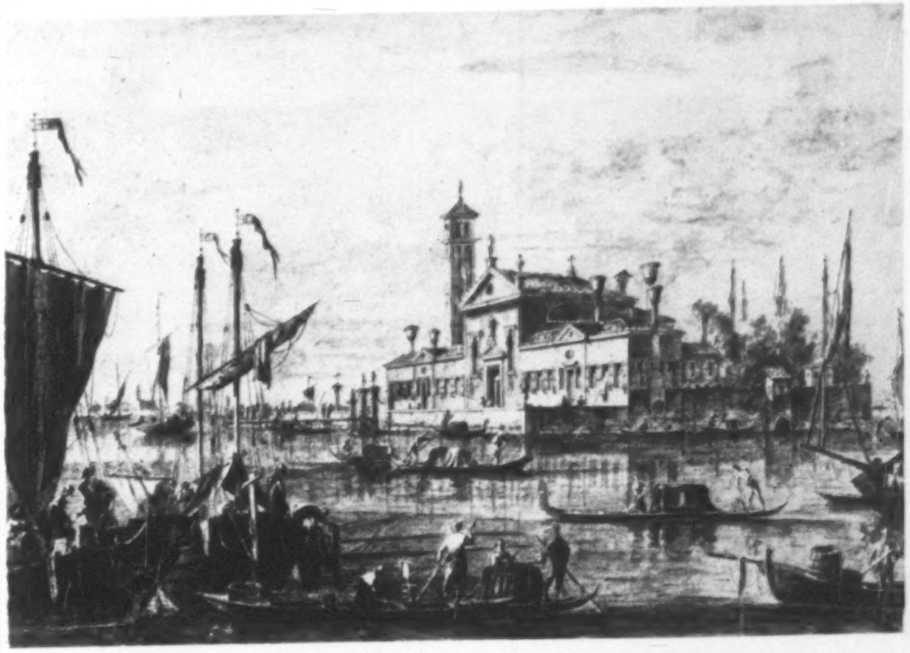
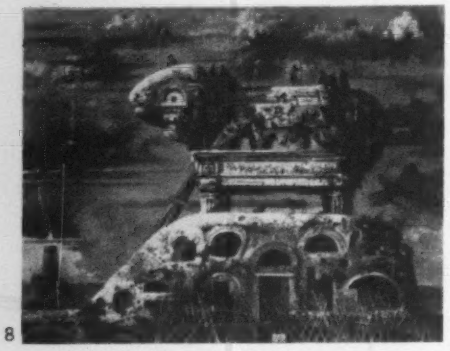

6

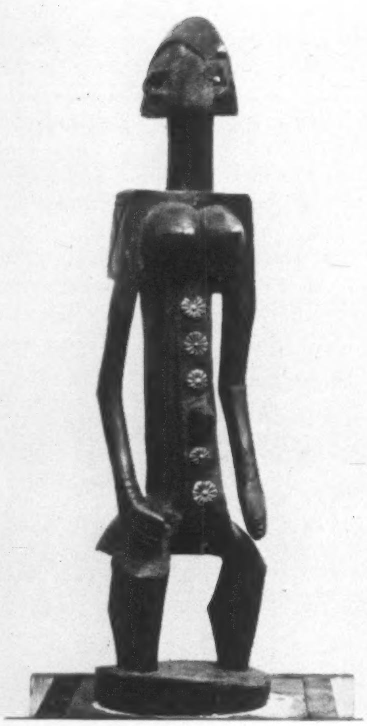
The early Picasso drawing, in blue wash, called 'Poverty,' 5, which was in the exhibition of drawings and watercolours from the Whitworth Collection recently shown at the Arts Council Gallery, is, I suppose, a nineteenth-century conception. Certainly the Gauguin drawing of peasant girls in a landscape, 6, from the same collection, is more modern in feeling, although it was done several years earlier. In the Gauguin, space is being flattened and the figures primitivized, and the human image is about to start on its roughest passage through the world of art. Since Gauguin's time it's been angled, blown-up, distorted, rolled out, fragmented and most of the bits shoved into the dustbin, and Picasso's displaced family, already overflowing with associations, now seems to be fleeing from the wrath of the artist.


7

Francesco Tironi's sumptuous topographical drawing, in red ink and grey and sepia wash, of 'The Island of the Blessed Virgin del Rosario, Venice,' 7–another lovely item from the Whitworth Collection—brings me, somewhat undiplomatically, to the architectural caprices of Eugene Berman at Lefevre's. I like the game he plays, and as long as it is played for its own sake, it's a game that never grows stale with repetition. Unfortunately, Berman inserts a full-blown artistic personality between the idea and the spectator, subjectivizing it with tricky textures and stale neo-romantic melancholy. 'Ram's Head Mound and Approaching Thunderstorm,' 8, would be covetable if it were drawn precisely and painted smoothly in cool tones, and the photograph gives some idea of how nice it might have looked. (I must remember to ask Felix Kelly to consider including the Euston Arch in one of his London caprices.)

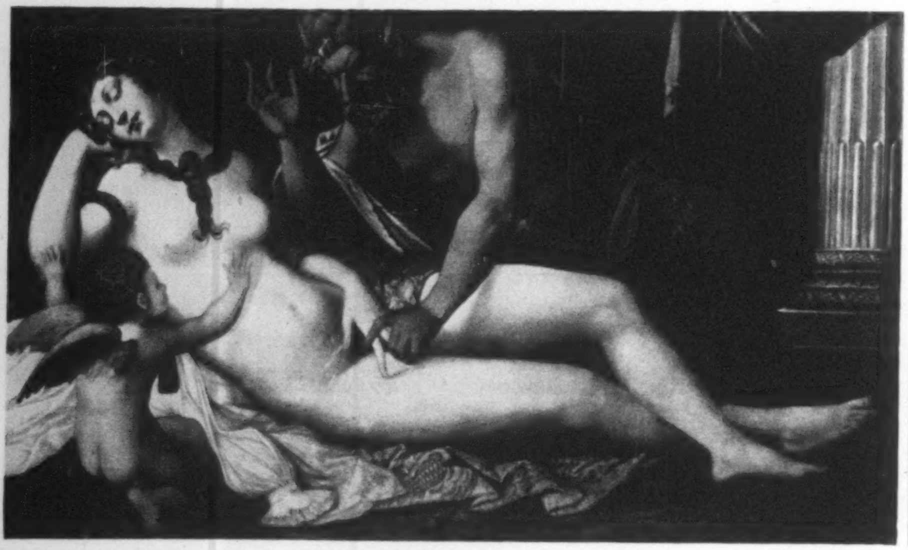

8

The two reproductions from the Arcade Gallery's latest mixed show—an African wood carving of the Malinke tribe, 9, and a School of Fontainebleau painting called 'Faun and Nymph,' 10, will, I hope, give a slight indication of the heady atmosphere of this crowded little gallery, with large paintings of saints and nudes climbing to the ceiling and a troop of tribal effigies advancing across the floor.


9

I wish someone would produce a long English essay on the School of Fontainebleau. There wouldn't be much to say from the artistic point of view, but I find the content of these pictures endlessly intriguing. This 'Faun and Nymph,' for instance, is more complicated than the title suggests. The sleeping nude could be Venus and the winged boy Cupid. And Cupid could be warning off the faun because he is expecting a visit from the God of War. Furthermore, I suspect that the face of the faun is a portrait and that the painting alludes to a court scandal involving perhaps a courtier and a soldier.

Robert Melville


10

HISTORY

MARSHALL'S MILL, HOLBECK, LEEDS

Not all the textile mills which went up in such numbers in Yorkshire and Lancashire at the beginning of the nineteenth century followed the principles of the Functional Tradition. Occasionally one would appear with a stranger architectural character. Unique in this respect is the flax mill of John Marshall & Company, erected in Leeds between 1838 and 1841.

At this period the flax industry was at its peak. In 1821 there were nineteen flax mills in Leeds, four owned by Marshall. By 1838 there were forty, employing 6,000 persons, and the number increased in succeeding years. John Marshall commenced flax spinning at Scotland Mill, near Adel, Leeds, in 1787. Here he was soon joined by Matthew Murray, a mechanic from Stockton-on-Tees who later became a noted mechanical engineer in Leeds. He introduced far-reaching improvements to the machinery. Marshall was one of the earliest successful spinners of flax by machinery driven by water or steam power. His 'wet spinning' methods revolutionized the industry in Leeds.

When the firm moved to Holbeck, south of the River Aire, they engaged James Combe, a Leeds engineer, to prepare plans for the erection of a new one-storey mill. It appears that they also consulted Ignatius Bonomi, a Durham architect, and David Roberts, the Royal Academician who travelled in Egypt and Syria and produced a famous series of watercolours and lithographs.

The result of this interesting collaboration was the curious and striking 'Egyptian Temple' design, still to be seen in Marshall Street. Two buildings, mill, 1, and office block, 2, stand out strangely in this district of factories and small dwellings. The nineteenth-century engraving, 4, shows them both. Huge attached Egyptian-type columns with lotus-leaf capitals, 3, are spaced along the six-foot thick battered walls of the façades which, in the office block, bear conventional Egyptian decorative motifs. The original works-chimney was in the form of an Egyptian obelisk.

The interior of the mill building, 5 and 6, is of great interest. This huge room is 396 ft. long, 216 ft. wide and covers an area of nearly two acres. Its flat roof is carried by brick groined arches 21 ft. high at the crown, with a span of 36 ft. These rise from fifty 14-in. diameter cast iron columns, 14 ft. high. The column capitals again display the Egyptian lotus-leaf motif. Wrought iron tie-rods, in pairs,

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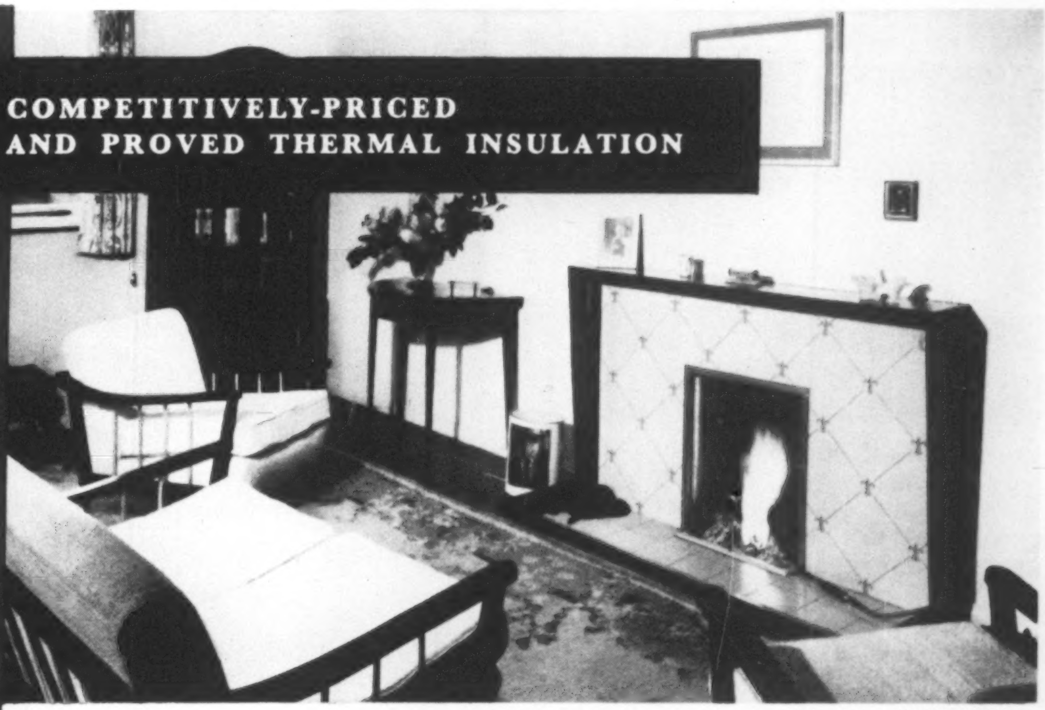

Photograph by courtesy of Ideal Home Magazine.

At "New Britwell", a house at Maidenhead. *Architect:* Michael H. H. Bayley, A.R.I.B.A.

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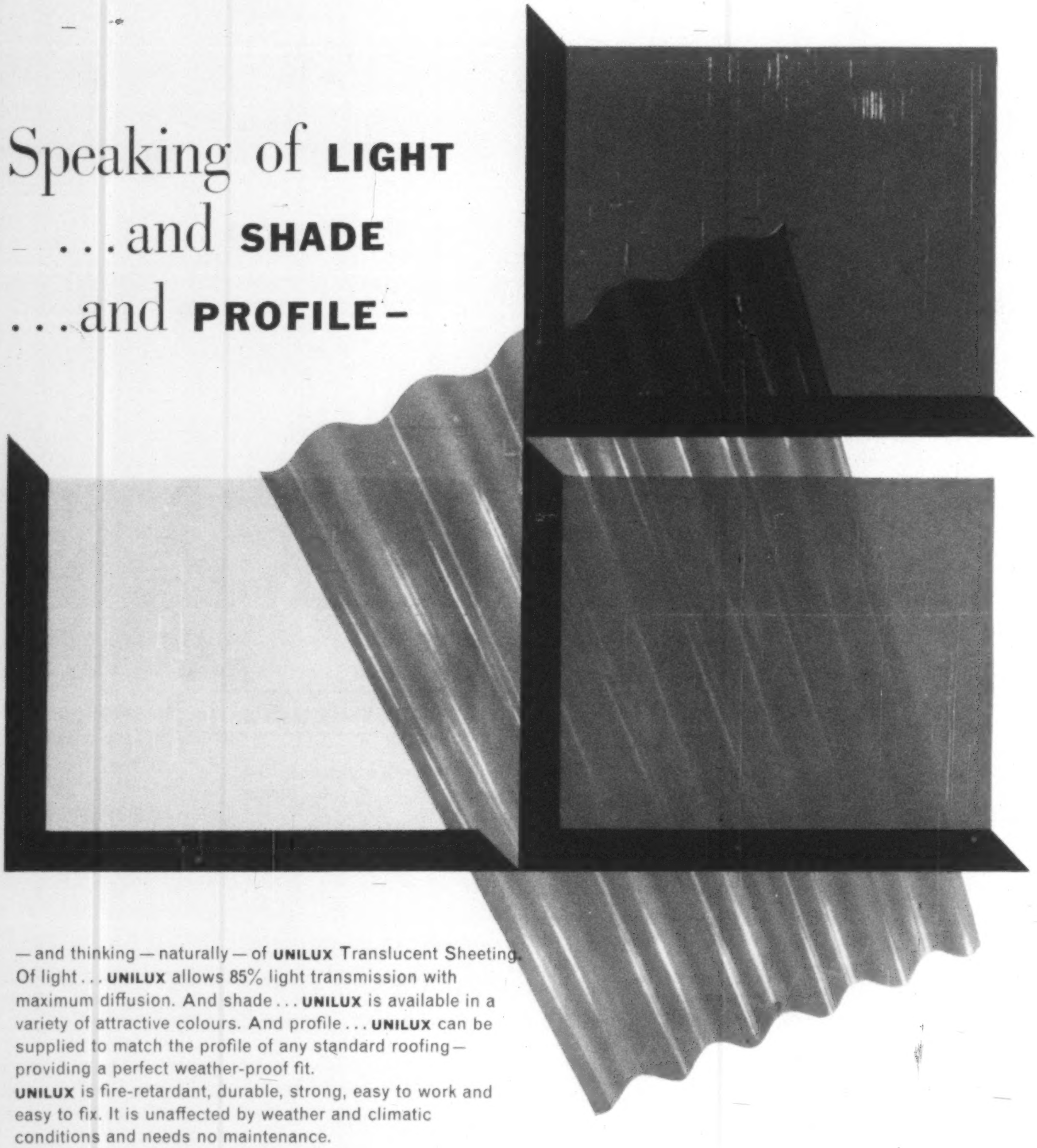

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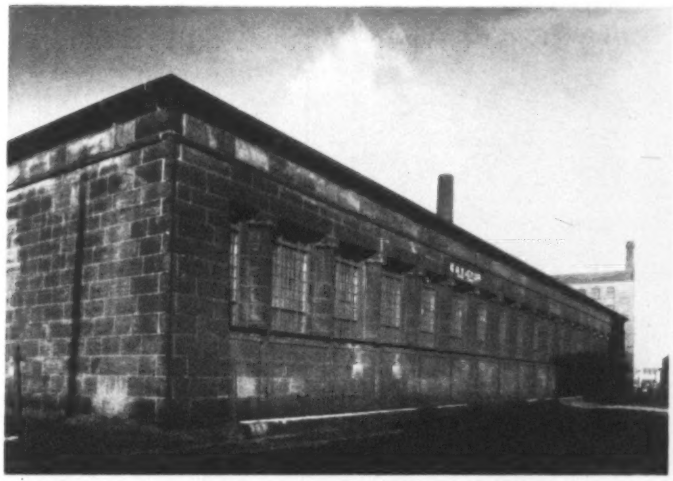

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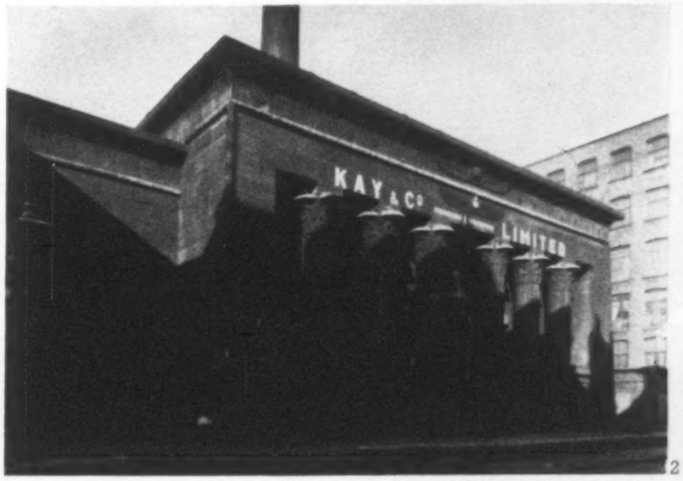

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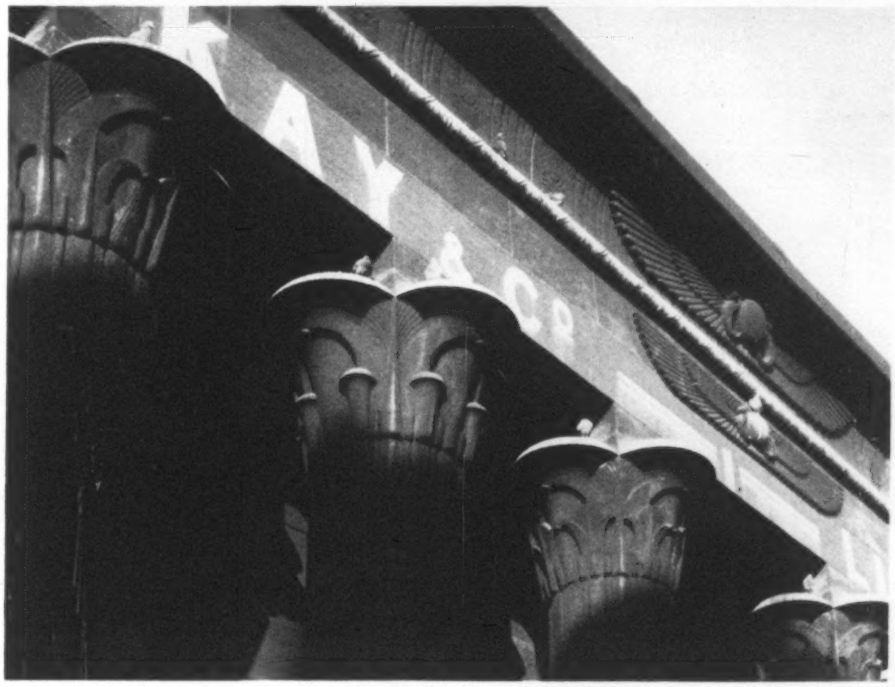


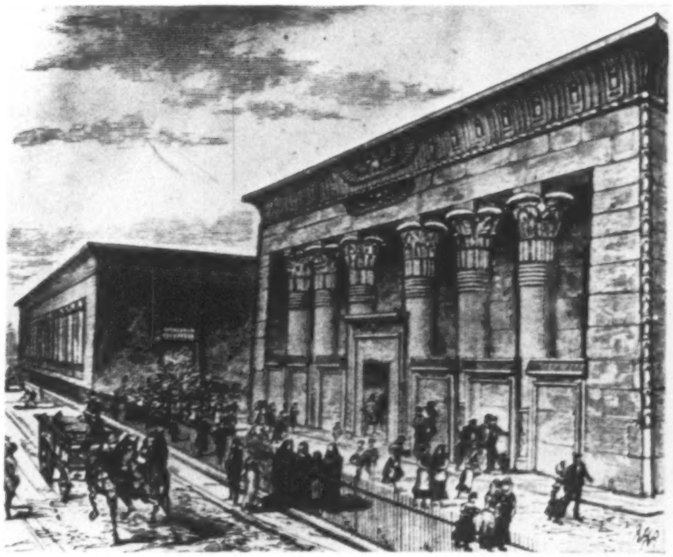
3

connect each column. These were tightened or slackened daily as the change of temperature demanded. Lighting is from windows in the façade and from sixty-six circular glazed skylights or domes, 13 ft. 6 in. in diameter, one at the centre of each arch. This form of illumination is surprisingly efficient, even on a dull day.

An impermeable covering of coal-tar and lime was laid on a coating of rough plaster over the arches and upon that was a layer of earth 8 inches thick, sown with grass. Alternations of frost, rain and heat were thus prevented from affecting the temperature of the great 'shed' below, an essential condition in flax spinning. Drainage was through tubes in the hollow cast-iron columns supporting the roof. It is said that at one time sheep were put to graze upon the grass-covered roof, but after a skylight accident to one of the animals this unusual 'field' was no longer used for the purpose. In later years the roof was asphalted and rendered water-tight, drainage by gutters and fall pipes being introduced.

The floor is stone paved, and is carried on a series of brick piers and vaulting.

Marshall's Mill, Holbeck, Leeds, 1838-41: 1, *the mill itself;* 2, *the office block;* 3, *detail of Egyptian capitals in the latter;* 4, *nineteenth-century engraving of the two buildings;* 5, *engraving of the mill interior.*



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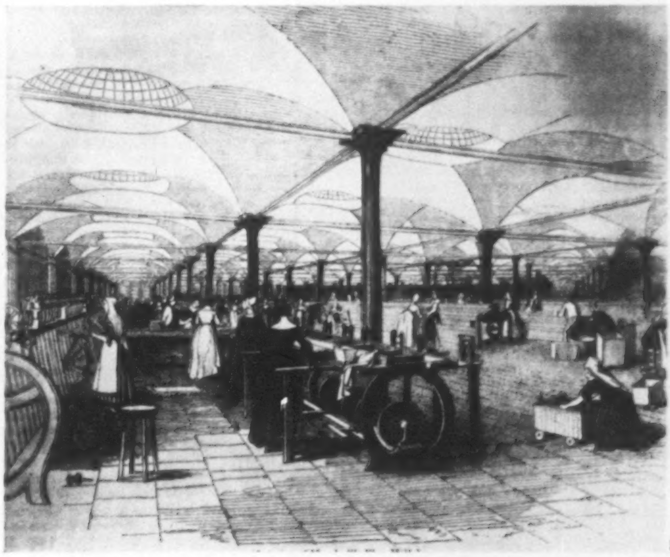

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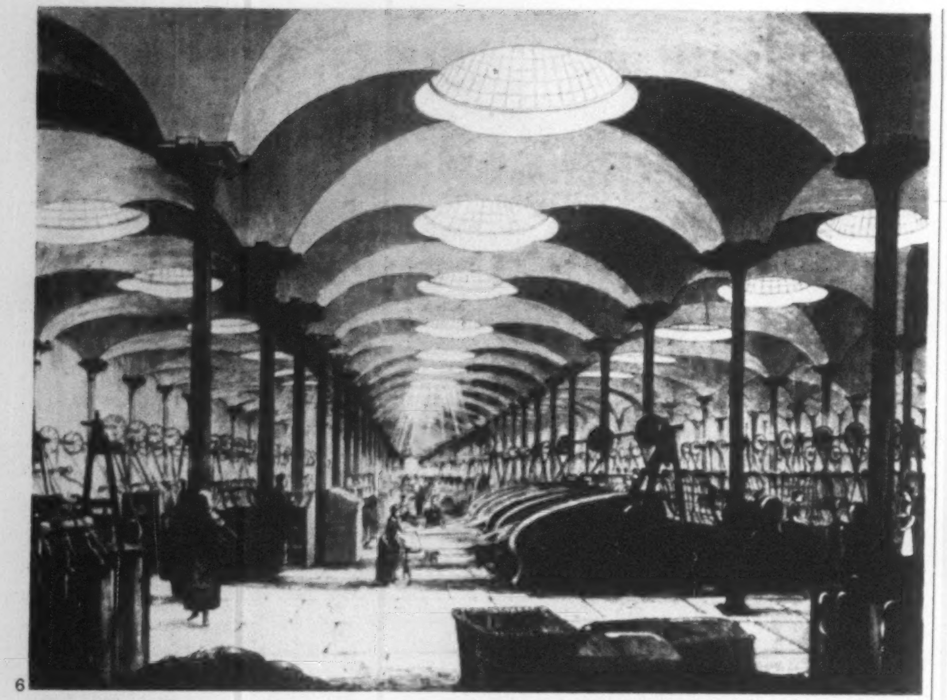

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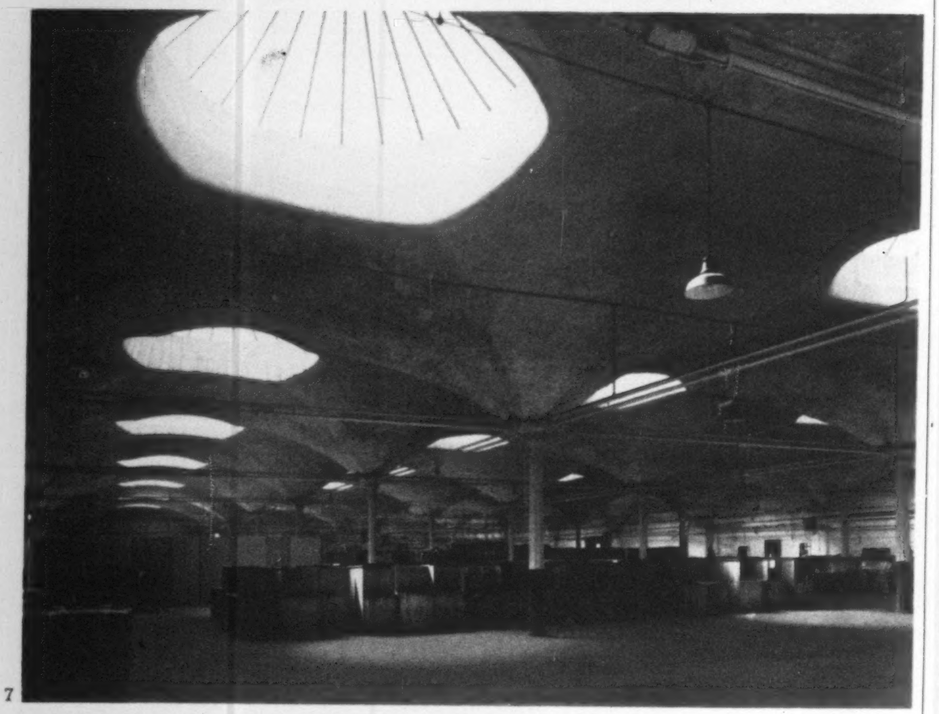

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6, the interior of Marshall's Flax Mill, with the original machinery. 7, the interior today, used as a warehouse.

extending beneath the entire mill. Here in early days were 'the shafts for communicating the motion from a pair of engines of 100 horses' power to the mill machinery, flues and steam cases for warming and ventilating, a revolving fan for urging the air into the room, also the gas and water pipes. . . . Valves and doors in the flues allow any desired temperature or the mixture of moisture which is essential for some part of the flax working process.' Thus the successive operations of drawing, roving, spinning and twisting were carried out in one great room under conditions excellent alike for the health of the work-people, most of whom were women, and the manufacture of the material.

The total cost of the mill was stated at the time to be £27,443, including 'the ornamental stone front.' Marshall was indebted to a Mr. Smith, of Deanston, Paisley, for the idea. Mr. Smith had already erected a weaving shed, half an acre in extent, with a brick arched roof of similar construction. Marshall's Mill became one of the show places of Leeds.

Over a thousand people were employed in the mill, including many children, who were all half-timers. A 'neat red brick building' still standing nearby was their school; this was also open to children of the neighbourhood. The firm also provided an Infants' School, a Library and a Church.

The mill finally closed down in October, 1886, largely owing to foreign competition. Known thereafter as Temple Works it was first used as a weaving shed, then as a clothing factory, and is now occupied by a mail-order firm who use it for warehouse purposes, 7.

K. J. Bonser

COUNTER-ATTACK

NO-ONE TO PLAN FOR

'Even in Berwickshire many of the farms have electricity now.' This remark was made to me in 1959. *Other recent improvements in the county include two schemes to provide running water for farms and cottages.* But even this degree of modernization hasn't halted the depopulation of Berwickshire. Including the four burghs (Duns, Eyemouth, Coldstream and Lauder), the population is now about 23,500: at the 1951 census it was 26,000. No industry wants to come to the county, the increasingly mechanized farms employ fewer and fewer people; and there seems little chance of any serious planning to stop the draining away. Eyemouth, the largest town, is seriously decayed in the centre, although the harbour is to be improved; the county town, Duns, just keeps its head above water and has a large new school, the only major building to be put up in the county since the war, but it is of very little architectural merit.

In such circumstances, it seems certain that if ever a Boundary Commission sits in Scotland Berwickshire will be swallowed up (probably by Roxburghshire) as Kinross-shire has already been swallowed by Perthshire—unless, for planning purposes at least, it can do some swallowing of its own. As things are it is neither an economic nor a plannable unit. Berwick, the natural focus of a large area of the north-east coast, is not only in another county but another country, with to some extent different planning mechanisms and different laws. Still, there seems no insuperable reason why, for planning purposes, Berwick shouldn't be included in the county which bears its name. Berwick can't do everything: it's quite a small town (population 12,000—half that of Berwickshire), but it would give some balance to the planning of the county. Administrative difficulties would be bound to crop up in quantity, but there seems a strong enough case to make it worth trying. Some people go further and claim that all the northern end of Northumberland, north of a line running north-east from the Cheviot to the sea somewhere near Bamburgh (and thus including Wooler and Belford as well as another large rural area and one or two disused coal-mines) should go to Berwickshire. The point is almost too academic to argue about, bearing in mind the chances of its being seriously considered. But the inclusion of Berwick is a different matter: it would make Berwickshire a more varied and more enticing unit, and give Mr. Tom Anderson, the eager but frustrated Planning Officer, someone to plan for.

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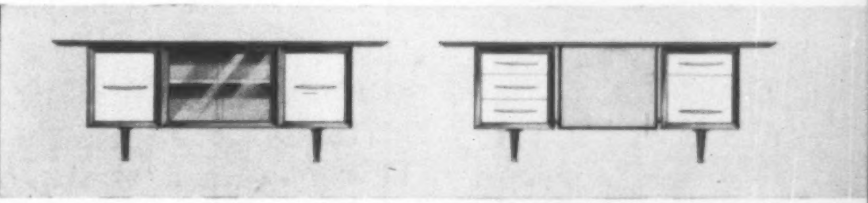

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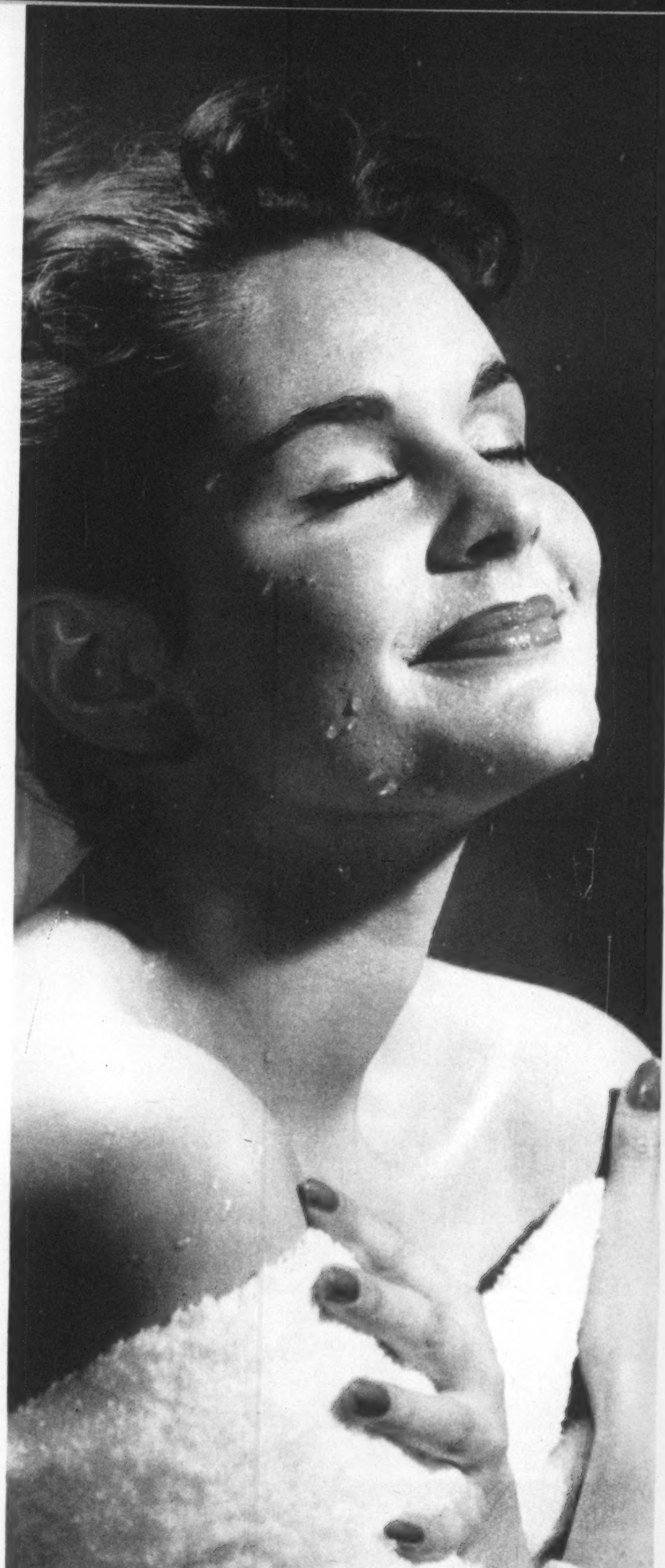


An 'Escaler' installation on the Lever Building, New York (architects: Skidmore, Owings and Merrill).

THE CLEANING OF LARGE BUILDINGS *by Lance Wright*

As buildings become larger and as we change from materials which 'weather' to materials which need cleaning, the operation of cleaning becomes something which must be reckoned with in design. We present in this article a summary of views on this problem gathered from discussions with architects, equipment manufacturers and cleaning contractors.

Any enquiry into the cleaning of large buildings must begin with those who are to do it. There is, of course, an intrepid and undemanding industry occupied with cleaning. So long as regular cleaning was confined to the window and so long as the window was regarded as a hole in the wall, this cleaning was—and is—mostly done from the sill, with the occasional balancing feat along a string or cornice. Surprisingly, the window cleaner has enjoyed almost no legal protection ; for such legislation as there is, is concerned with the fear not that he may fall and hurt himself, but that he may fall and hurt the public beneath. Thus the LCC byelaws are only concerned with facades which face on to a street. It is an offence to stand or kneel on the sill of any window facing on to any street and above six feet from the ground 'without support sufficient to prevent' you from falling. This 'sufficient support' is interpreted by the London police as having a safety belt round your waist and this safety belt is supposed to be attached to hooks at the side of the window, but sceptical window cleaners say that, provided a man is wearing a belt and the straps pass out of sight inside the window, the police are satisfied.

Window cleaners seem likely to receive vicarious protection from the fact that much new hoisting equipment is being used also for maintenance work. For, though it is legal to submit a window cleaner to almost any hazard, you cannot do the same to a building operative.

Another entry for safety regulations occurs when mechanical hoists are run on guide rails or steel ropes permanently fixed to the structure. For, when this happens, hoists can be subjected to the full rigour of the safety regulations applying to passenger lifts. If this were literally interpreted, it would make this mode of cleaning uneconomic; and, at the time of writing, manufacturers are negotiating with the authorities to reach a fair interpretation. What concerns us here, however, is the absence of protection for the window cleaner as such. This, in a regulation-bound country like ours, is evidence of the small amount of thought which has been given to this subject as a whole.

Inside or outside cleaning

The most important single issue affecting window cleaning is whether it is to be done from the inside or outside. Since the second world war, architects and window manufacturers have been making a considerable effort to make all cleaning possible from the inside. Clearly, where windows are set in walls which need no cleaning or where the cleaning will be done unprofessionally, as in flats, there is a case for this; but in tall buildings, particularly in tall office buildings, the weight of evidence is tending to turn against this solution. Windows these days extend normally at least from sill to ceiling and are proportionately wide. This means that, if they are to be cleaned easily from inside the room, part at least of the surface to be cleaned must swing into the room. This, in turn, means that a considerable area next the window must be periodically cleared of furniture. Apart from this, window cleaning must generally be done during office hours and the total amount of dislocation to office work which cleaning from inside can cause is very great. The curtain wall intensifies the difficulty of cleaning from inside. Architects claim so to place their opening lights that all parts of the facade can be reached from the window openings; but, if this is just possible physically, it will always be exceedingly awkward and parts of the facade are certain to be skimped. In fact, the curtain wall has brought a new twist to cleaning in that, in most cases, the sub-frame will need attention as well as the glazed panels and all will need maintenance at fairly frequent intervals.

Air conditioning and double glazing, when they apply, are further motives for not cleaning from the inside. There is a type of window on the market designed for air conditioned buildings which spins round through an angle of 180 degrees, but this does not attempt to solve the curtain wall problem and there is evidence to show that this easy movement on a large window is a source of danger.

Though doubtless there are some cases on tall buildings when inside cleaning is best, in most of them it is not.

External cleaning: the alternatives

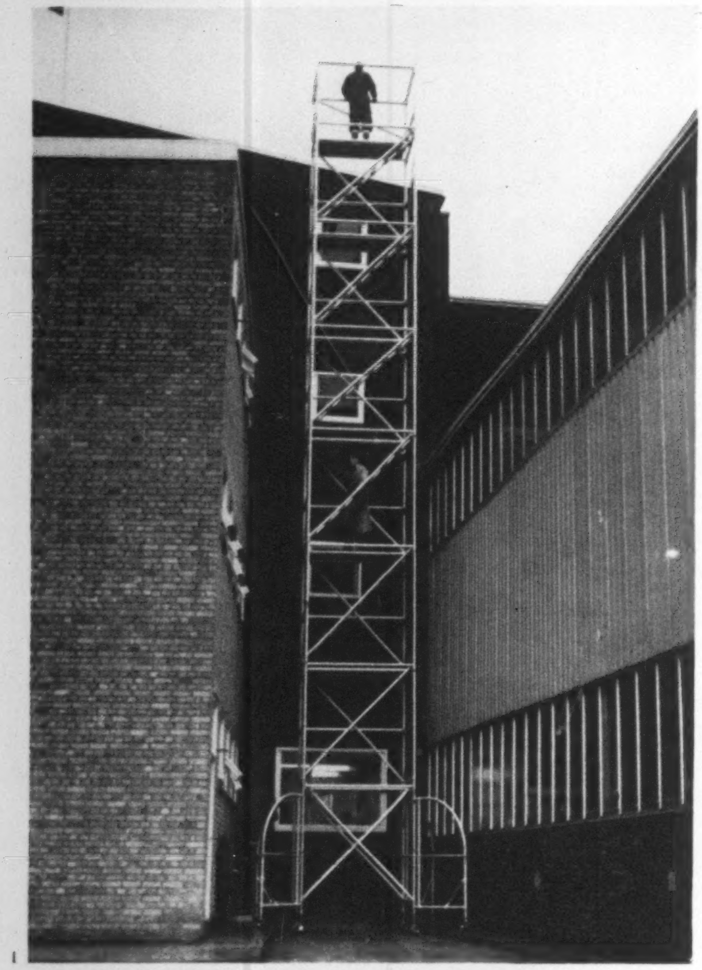
Generally speaking, the kind of buildings which form the subject of this article cannot be cleaned from ladders or from scaffolding erected on the ground; for, above three storeys, ladders become too heavy and scaffolding takes too long to erect and move. There is, however, one piece of ground-based apparatus which is feasible for buildings up to 40 ft. high. This is 'Zip-up Staging' manufactured by Access Equipment Limited, 1. This is a hinged and welded aluminium scaffolding which can be mounted and demounted quite rapidly (2 to 3 minutes for each 10 ft. rise) by two men and can be wheeled along the building frontage. Though some irregularities in the ground can be taken into account, the staging must have a level and firm base on which the wheels can run. This base must be 10 ft. wide from the frontage of the building, though there is no objection to a line of flowerbeds running down the centre of the base. Zip-up staging makes no further demands on the building structure and the first cost is comparatively low. A staging for a 40 ft. high building costs about £400.

Above 40 ft. some form of suspension will almost certainly have to be used; but, before describing suspension systems, it is perhaps worth remarking that in one tall building now under construction (New Zealand House) suspension has been avoided by providing a continuous ledge at each floor level, together with a continuous runway at each ceiling level. Cleaners have a strap round their waist. This is attached to a cord which, in turn, is attached to runners on the track.

Suspension systems fall into four broad categories of elaboration.

The first is to install fixings at 16 ft. intervals along the roof top. To these will be attached portable davits which, in turn, support short lengths of rail parallel to, and projecting over, the head of the wall, 3. Davits and rail can then be moved from fixing to fixing as the work proceeds and will be removed when it is finished.

The second method is to fix a permanent rail some 18 in. in front



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of the wall face and at the top. This may be in front of the parapet, where it will be visible, or under the eaves, where it will be difficult to see, 2.

The next method (which is normally only applicable to a flat roof) is to use a pair of running davits usually called a 'trolley,' 4. These are coupled together on a triangular frame. They bear on a pair of wheels which run near the roof edge (either on a track, when they will be of steel, 5, or on the roof surface, when they will have rubber tyres) and are held down by a third wheel which runs in a guide rail further back.

All of these three versions assume that the cradle will be hand operated. The fourth uses rails similar to those just described, but the working platform is manipulated not by hand, but by electricity. The motor may be on the working platform itself, or it may be on the roof, but the control panel will always be on the working platform.

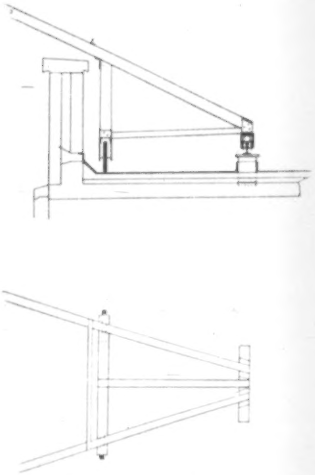
There is no hard and fast rule when to use which system. The choice between a portable system and a permanent rail is made, as often as not, on grounds of appearance. A permanent rail saves much time and money, but it must always be visible from the ground and not all architects are prepared to accept it. A manually operated trolley system (the third in our list) will cost something in the order of seven to eight hundred pounds and a large firm of cleaning contractors has estimated that this outlay is justified on any building which is of three storeys or more and has a total perimeter of over 100 ft. The use of a trolley reduces the labour cost of cleaning by about one-third.

1, 'zip-up' scaffolding.

2, permanent rail, erected by Palmer's, behind the eaves of the TUC building, London (architects: David Aberdeen and Partners).

3, section showing fixing of typical portable runway.

4, Cradle Runway's travelling trolley on Shell Offices at Stanton (architects: Grenfell Baines and Hargreaves). Note the use of a tubular track in place of the more usual r.s.j. and the siting of both tracks clear of the roof surface.



5, elevation and plan of Palmer's travelling trolley.

The use of power operated equipment is probably economic on buildings over 100 ft. high or which have a perimeter of 400 ft. or more. It is in this class that most development is now taking place.

Equipment available

At the traditional end of window-cleaning, practice is much influenced

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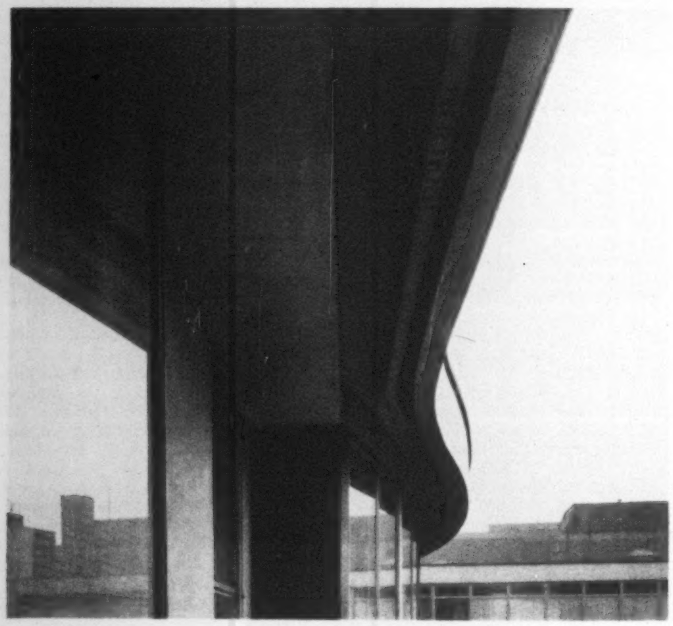

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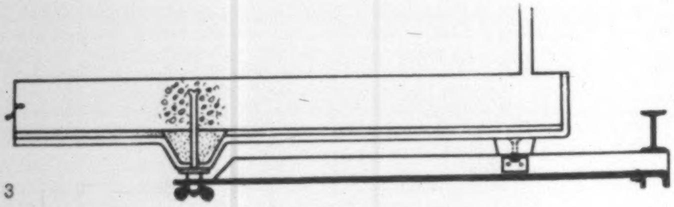

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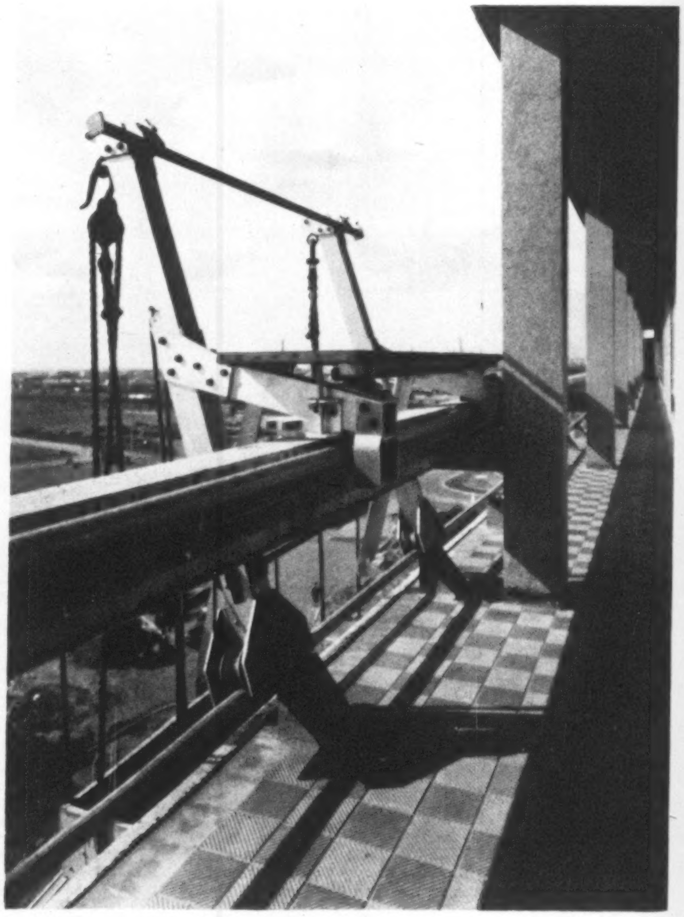

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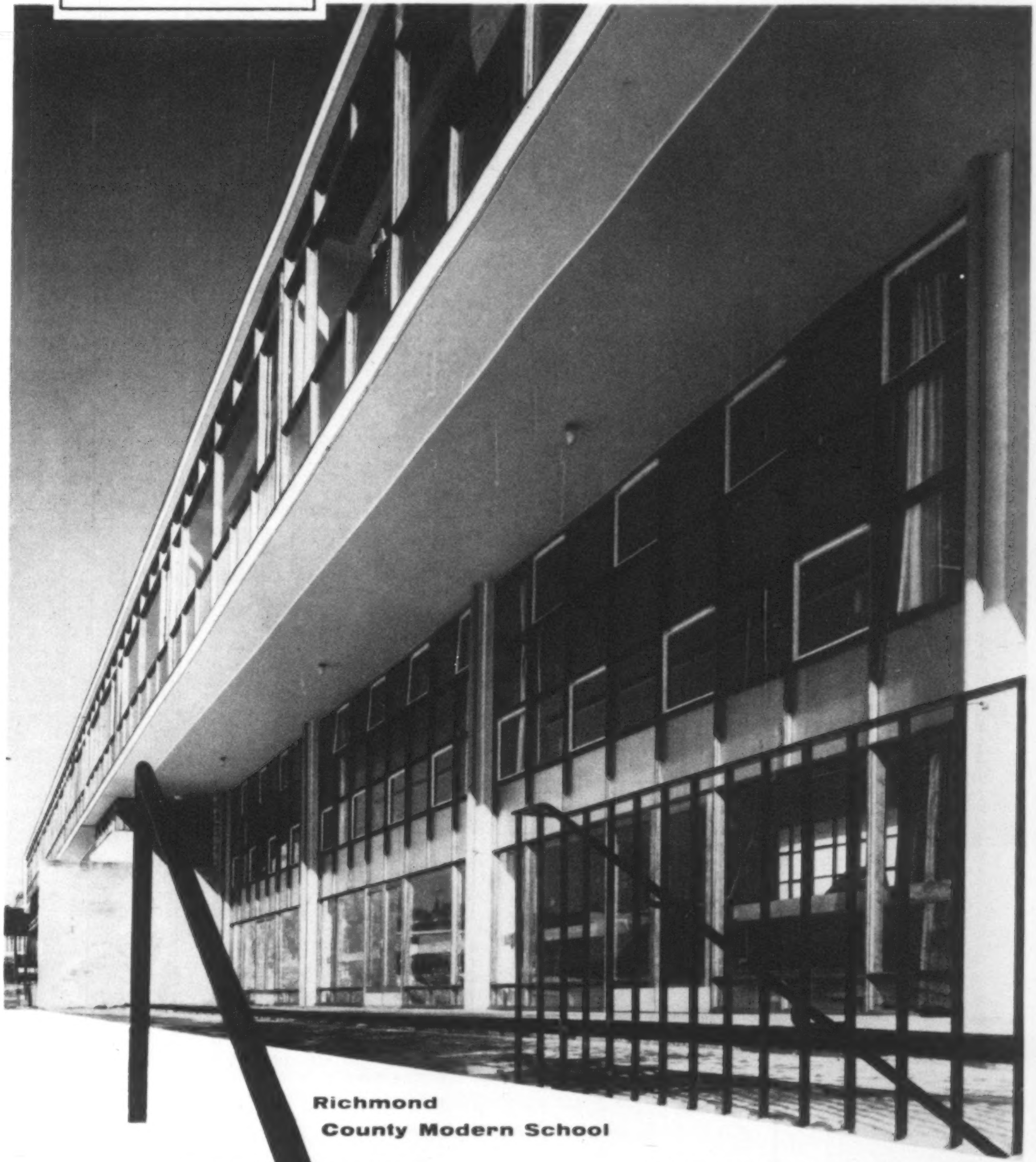

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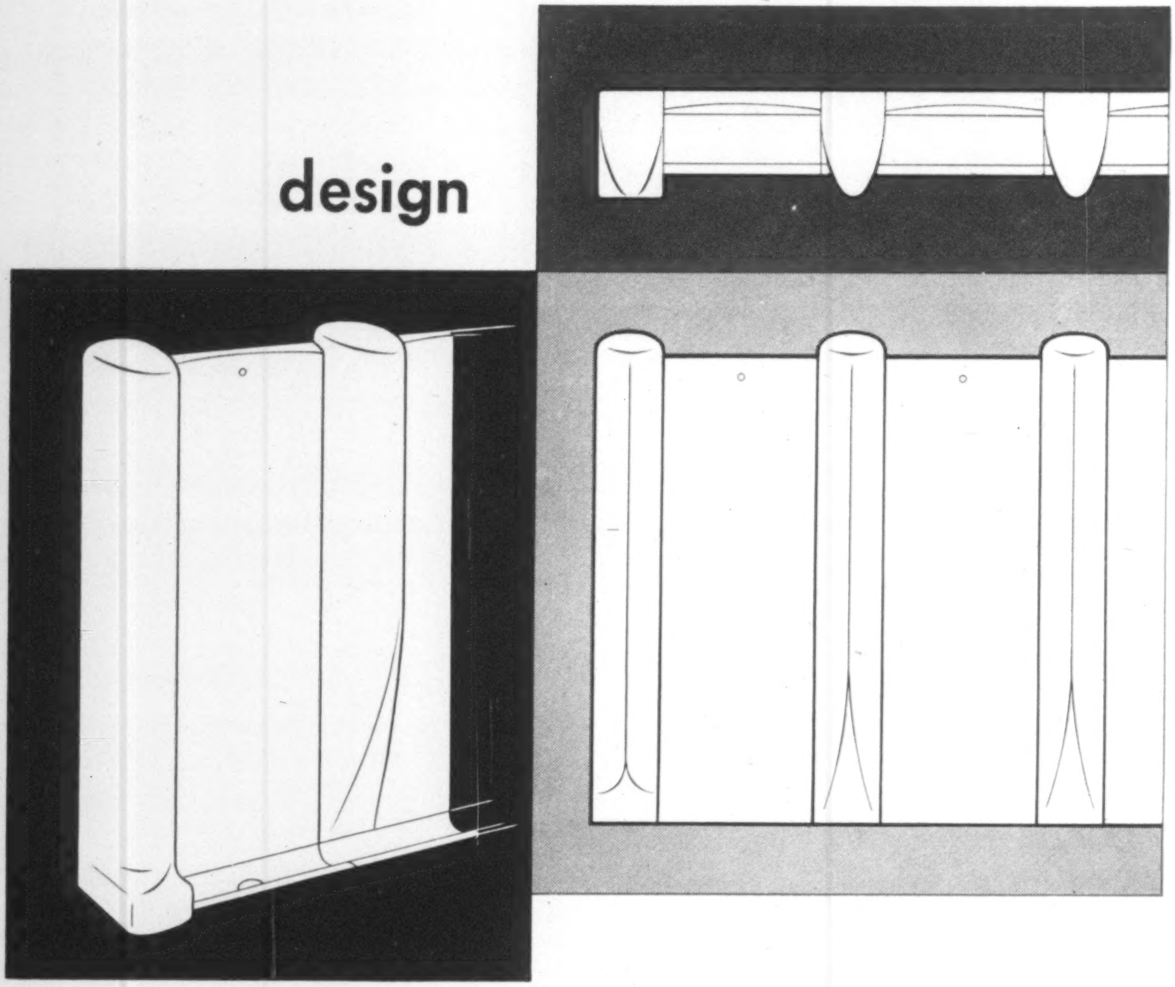

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continued from page 284]

by the habits of cleaning contractors. The window cleaning industry is characterized by a high standard of personal performance (window cleaners are industrious and uncomplaining) and by a conservative approach. This is illustrated by the fact that estimates are always made 'per pane' on the assumption that a large pane is about as troublesome to clean as a small one. This method, which doubtless served very well for traditional windows, is evidently unsuitable for modern glazing where a rate per square foot would seem more to the point.

In this country it is universal practice to clean with a leather. This gives an excellent result, but it is not expeditious and it must be doubted if it is the best method for the very large areas of glass which are becoming the rule. In America cleaners have gone over to the use of the squeegee—a rubber blade 18 in. long not unlike a car windscreen wiper. This is held in one hand, set vertically against the glass face and moved across the surface horizontally. At the same time the dirty water coming off the pane is gathered in a ball of scrim held by the other hand against the bottom end of the squeegee. American window cleaners using this method can clean 5,000 sq. ft. of glass in an 8-hour day.

The standard travelling cradle in use in this country was originally invented by Palmer's in 1896. It is 6 ft. long (a dimension determined, presumably, by ease of handling) and consists of a platform with an open balustrade. A recent innovation designed specially for Castrol House is to make the cradle of polyester fibreglass and to enclose the sides. This gives an added feeling of security which is much appreciated by cleaners. Once an installation is mechanically operated, cradles can be made longer; and, in fact, cradle length can become a significant fact in the design of walling.

Many firms make both portable equipment and standard rails, two of the best known being Palmer's themselves (Palmer's Travelling Cradle and Scaffolding Co. Ltd.) and Cradle Runways. There is little to be said either about these or about the hand operated trolley systems. It is only in power operated equipment that there are important divergences in design. As we have mentioned, there are two main types of power operated equipment. The first are those which are suspended from a track and carry the electric motor on the working platform itself. The second are suspended from some form of crane which runs on tracks near the roof edge. Makers of the first are Access Equipment Ltd., who market the 'Spider,' 7, and they will shortly be joined by W. C. Youngman Ltd., who are planning to market a hoist called 'The Climber.' This type is suitable for heights of between 40 and 150 ft. and the cost of a Spider installation is between £1,000 and £1,500. The Spider was originally designed for industry—the cleaning of the insides of giant boilers and the like. Access Equipment maintain that any form of staging suspended from a height greater than 70 ft. requires some form of lateral restraint and the Spider requires both a top track at the eaves and a bottom track at the foot so that steel guys can span between the two and thus restrain the platform.

Mechanical systems which use roof top cranes are more elaborate and usually more expensive. There are at present four—available of which one only (Palmer's 'Palmatic,' 6) originates here. Mills Scaffolding have brought over the German Mannesmann Leichtbau equipment, 8; the Titan Lift Company are marketing a Danish hoist (called 'The Face Lift,' 9) and Access Equipment are manufacturing the 'Escaler,' an American hoist used originally on Lever House. Only the Palmatic and the Mills Scaffold cradle have been actually in use on a tall building in this country.

The absence of working experience under British conditions makes it impossible to make a useful comparison between the four types of equipment offered. Three of them, the Palmatic, the Mills and the Face Lift, fall in broadly the same class as regards both cost and roof loading, the cost range for an installation being between two and four thousand pounds and the roof loading between two and four tons. The Escaler on the other hand has been designed for the large building in the American sense of the word and an installation can cost anything up to £25,000 and weigh up to 20 tons.

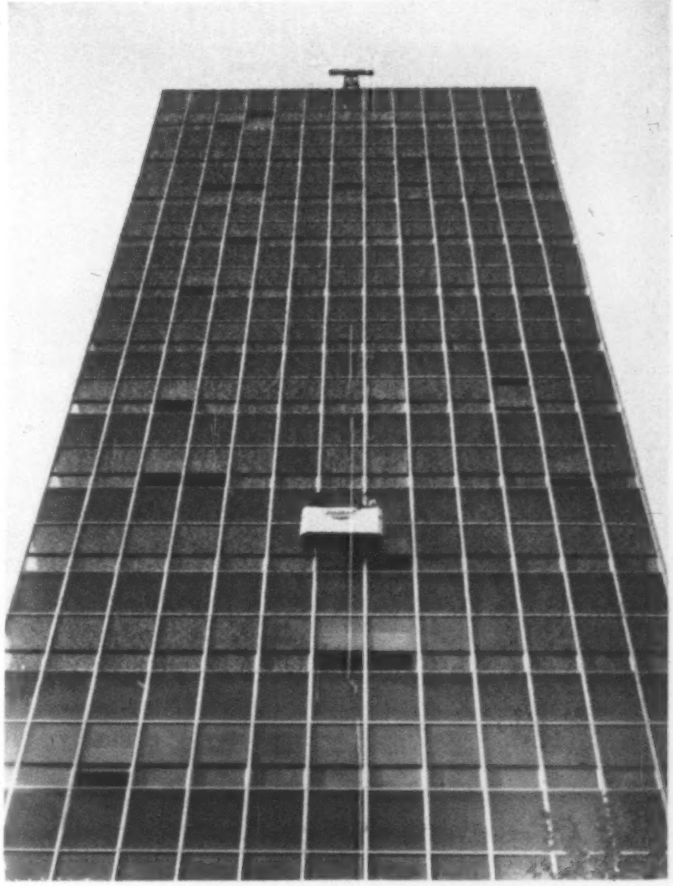
Designing for cleaning

It is certain that in the long run cleaning will make a considerable difference to the profile of buildings. In general, any irregularity of outline, any projection or any recess creates a problem. In the past the window cleaning industry has rejoiced in solving problems, but as buildings become larger, solutions become more troublesome and thence more costly. Once a building has come into the class which requires mechanical equipment there is a strong motive for having the roof at a single level, for otherwise you must either duplicate the equipment or devise some other means for cleaning the smaller area. This would not matter greatly in a point block with a podium, since the podium can be cleaned by orthodox methods from the ground. But it would matter if there were two roof levels both at a considerable height.

Projecting eaves tend to cause trouble. On buildings up to, say, 150 ft. they may be a blessing, since you can put a rail immediately underneath them which will be almost invisible and use this as the top rail for some form of powered hoist, like the Spider. But, if the height is such as to require a roof top crane, troubles begin. The eaves projection must normally be less than 18 in. for otherwise it will not be possible to hold the cradle at the right distance from the building face. For low buildings some firms introduce a sheave which holds the cradle inwards and permits a wider eaves, but this method ceases to be effective above 70 ft. or so. When the cradle reaches the top of the run and is to be lifted on to the roof it will have to be swung outwards to clear the eaves. This is usually done by altering the angle of the jib.

Opening lights are another source of trouble, since the unexpected opening of a window could easily foul the platform. The sliding sash, however, gets over this particular difficulty.

There is much discussion among equipment manufacturers about the need for guides to hold the cradle against the building. The standard hand operated platform relies on a length of rope trailing down on to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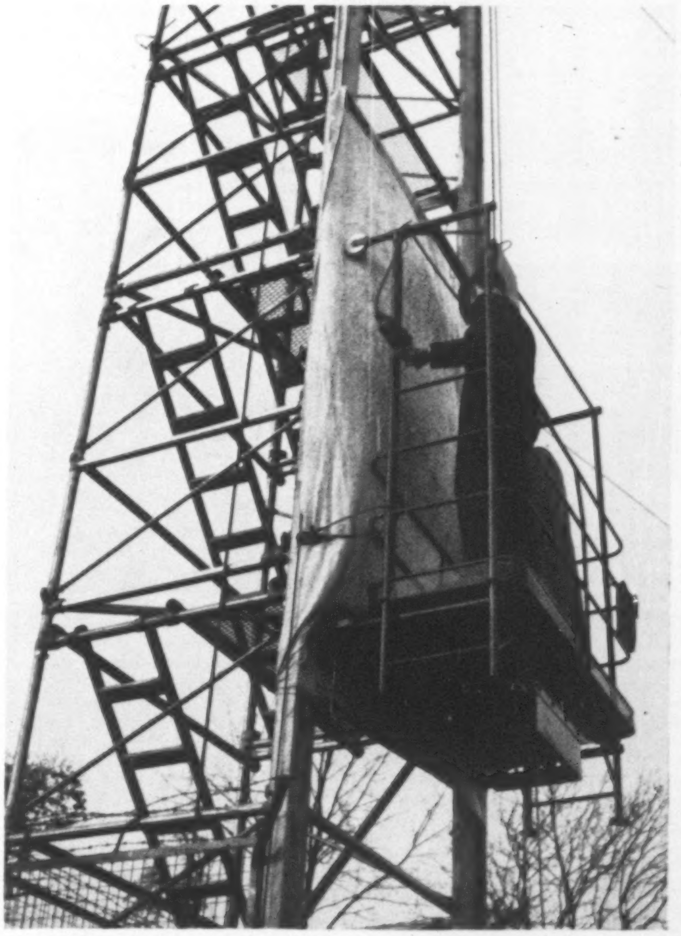
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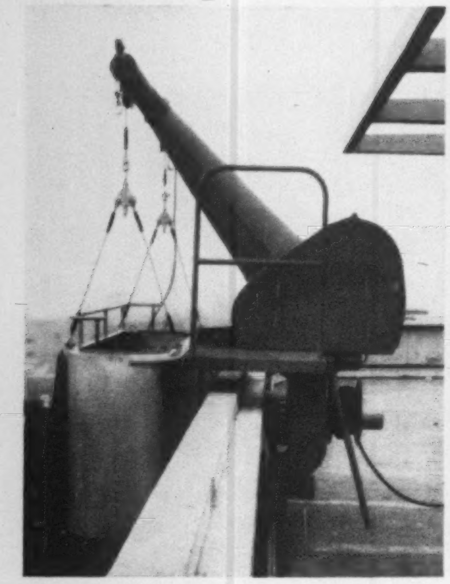
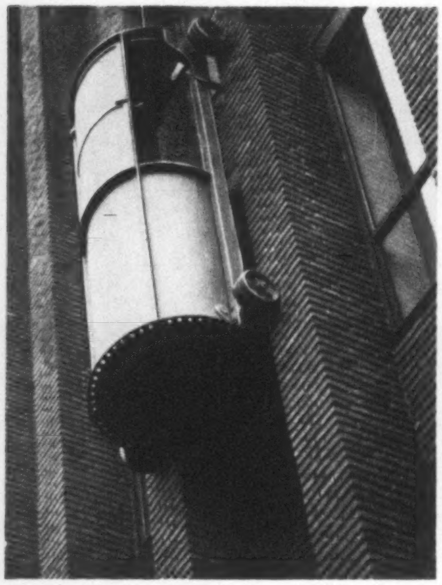
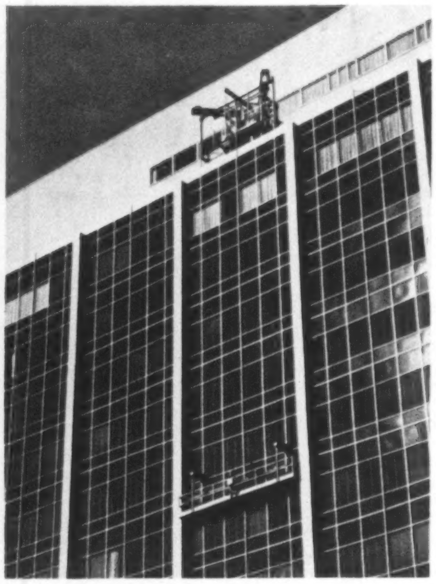
6, the 'Palmatic' installation on Castrol House (architects: Gollins, Melvin, Ward and Partners).
7, the 'Spider' hoist.







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8, the Mannesmann Leichtbau equipment on Sankey's Offices, Bilston (architects: Howard Crane and Partners).

9, the 'Face Lift.'

10, the 'Escaler' on the Ford Building, Dearborn (architects: Skidmore, Owings and Merrill).

the ground to hold it steady and in position; but the electrically operated platform has no such anchor. Opinions vary among manufacturers concerning the heights at which guides on the building face are necessary. Palmer's take the view that they are not necessary and add that guides, unless of stainless steel, must add to the problem of maintenance. When they designed an installation for Castrol House, they omitted them and are not apparently regretting this. In normal weather movement is slight. One unexpected result, however, is that there is a considerable draught up the face of the building. At Castrol House this does not affect the cradle when *above* 30 ft., but at heights below 30 ft. is sufficient to hold the cradle about 4 ft. away from the building face. Plans are being made to hold the cradle in at these levels by means of hooks on the building face.

As has been mentioned earlier, the fixing of any form of guide for a mechanically operated hoist has the legal effect of making the hoist classifiable as a lift and subject, therefore, to more stringent regulations. The Titan Lift Company (the importers of Face Lift) consider that a rail is necessary above 12 storeys; Mills Scaffolding and Office Cleaning Services Ltd. set the figure at 150 ft., while Access Equipment are of the opinion that some form of restraint is called for (either in the form of wire guy ropes as is used on the Spider or an r.s.j.) above about 70 ft.

11, a device by Palmer's for giving access to the external corners of Fountain House (architect: W. H. Rogers; consulting architect: Sir Howard Robertson) using a trolley. This enables the cradle to be transferred from one building face to the other without being unshipped. Another method of obtaining the same result is to use a miniature railway turntable.

Manufacturers report that architects strongly dislike guides, on aesthetic grounds. Most guide rails that have been provided in Europe have been designed to restrain both sides of the working platform. If the platform is narrow (as is usual) this means a pattern of strong verticals at comparatively close centres. In fact, the working platform probably does not need this dual restraint: one guide per drop would be enough. On the Ford Building at Dearborn, Michigan (an Escaler installation), the cradle is 14 ft. wide and is restrained only by a central guide. As can be seen in the photograph, the rail itself is not a decisive element in the composition, 10.

Most planning authorities are insisting that on tall buildings no cleaning equipment is to be permanently visible above the skyline. With the hand operated trolley this is a simple matter, as the trolley itself is demountable. Electrically operated cranes are more troublesome: the usual solution is to provide a parapet and to design the crane jib so that it can duck down beneath it when not in use. In the large installation which is being designed by Access Equipment for Vickers House, a garage is being built at roof level.

Conclusions

The message of the industry to the architect in this matter, as in so many others, is that the architect should discuss his cleaning problem as early as possible. A guide rail or a runway thought of at the beginning of a design problem has a good chance of becoming a visual asset; but one found to be inescapable at the last moment almost certainly will not. The real impact of cleaning on design, however, is to be found not in the added trim which must be accommodated, but in the influence it will exert on the building envelope. The manufacturing and cleaning industries insist that difficulties can be overcome. So they can; but at a price. Castrol House has $2\frac{1}{2}$ acres of glass: the glass is cleaned once a fortnight, the framing once every three months. It is easy to see that, on a cleaning contract of this size, the cumulative cost of any awkward surface eccentricity could be great. Fortunately it has been shown time and again that disciplines of this sort, if properly understood, are incentives and not bugbears to design.

Access Equipment Limited, Maylands Avenue, Hemel Hempstead, Herts. Boxmoor 5781.

Messrs. Cradle Runways, 76 Upper Brockley Road, London, S.E.4. Tideway 6079.

Mills Scaffold Co. Ltd., Trussley Works, Hammersmith Grove, London, W.6. Riverside 3011.

New Century Cleaning Co. Ltd. 31 Eagle Street, London, W.C.1. Chancery 8800.

Palmer's Travelling Cradle and Scaffold Co. Ltd., Woodside Green, London, S.E.25. Addiscombe 7721.

The Titan Lift Co. Ltd., 23–27 Pancras Road, London, N.W.1. Terminus 5138.

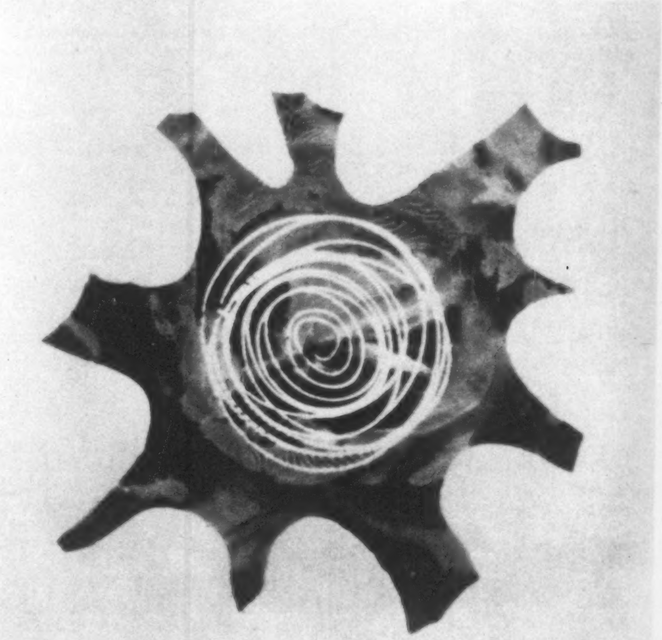
W. C. Youngman Ltd., Wandsworth Works, Wandsworth Road, London, S.W.8. Macaulay 2233.

THE INDUSTRY

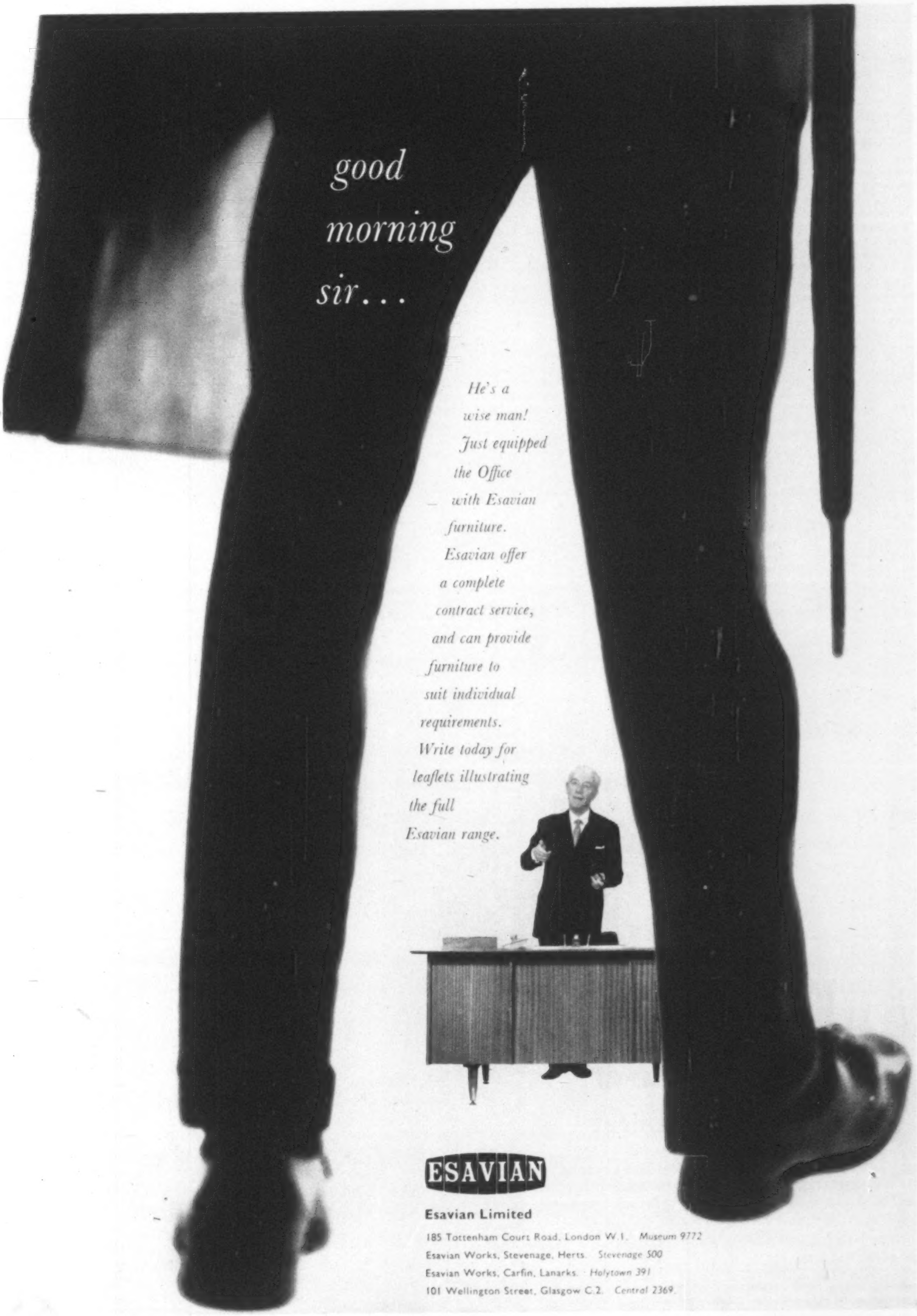
Wall tiles

A patent process for applying pigment to ceramic tiles (or any ceramic cladding, such as faience, for example) has been devised by Michael Caddy, a freelance designer. The method used is a double drying process using ceramic enamels which are sunk into the glaze, thereby making them very hard wearing. The process is suitable for internal or external use and gives a lithographic

[continued on page 288



1, a ceramic tile with pigment applied according to a process developed by Michael Caddy.



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101 Wellington Street, Glasgow C.2. *Central 2369.*

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feeling. Price is comparable with silk screen, repeat pattern, say 105s. per square yard.
Michael Caddy, DesRCA, 33 Albert Bridge Road, London, S.W.11.

Polythene film

When plastics first entered the building industry they did so mostly in the sphere of finishes, in furniture and fittings for example. They were not for long limited to uses of such sophistication, however, as subsequent development in piping and rainwater goods proved. At the same time plastic sheets came to be used for such purposes as damp-proof membranes over concrete slabs.

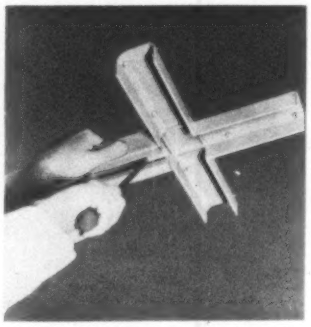
Marley's have now produced a polythene film, known as Marleythene, which is 72 in. wide and is supplied folded down the middle, so that rolls are 36 in. wide. Rolls are 100 yards long so that each roll contains 200 sq. yds. of material. The film is produced in three thicknesses, 150 gauge (0.0015 in.) weighing 14 lb. per roll and costing 77s., 250 gauge (0.0025 in.) 21 lb. and 129s. and 500 gauge (0.005 in.) 47 lb. and 258s.

As a waterproof membrane over ground-floor slabs the heaviest gauge is recommended and is claimed to have a very low moisture vapour transmission rate. The 250 gauge is recommended for such uses as a separation barrier to enable movement between slabs. The manufacturers suggest the lightest gauge for concrete curing. They say that the film retains 95 per cent of the moisture in the concrete thus eliminating the need for constant watering. It is also claimed that concrete cured with polythene has a compressive strength of 10 per cent higher than air-cured concrete.

There is no doubt that with a little imagination this material could be put to many useful purposes on the building site—lining to concrete shuttering, scaffold sheltering, temporary glazing and so on. Its specific gravity is quoted at 0.92, melting point 115 degrees centigrade and it is unaffected by moisture or temperature changes.
The Marley Group, Sevenoaks, Kent. Telephone Sevenoaks 55255.

Lighting trunking

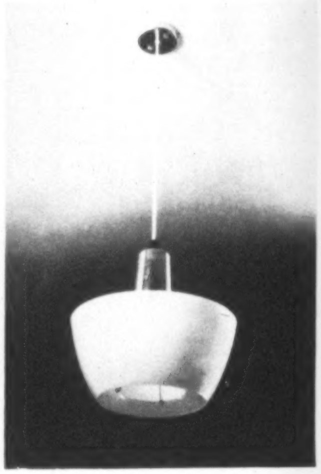
Less improvisation and more standardization on the site is what the building industry needs, so the appearance of Siemens Edison Swan's system of lighting trunking is welcome. The system made its debut at the Building Exhibition last year and is based on a trough section supplied in standard lengths of 15 ft. The trough is 2⅜ in. wide and 1⅜ in. deep and is 16 s.w.g. cold rolled mild steel, stove enamelled a light battleship grey. It is possible—to support the trunking from rods fixed to the underside of the ceiling slab by means of a stirrup fitting although the rods are not part of the system, and there is another fitting which clamps to the flanges of a rolled steel joist which enables suspension of the trunking from that. A more widespread use of this system will result, no doubt, in some form of telescopic rod to go with the other attachments. Wiring cables of up to 7/064 conductors (53 amps.) may be accommodated in two troughs in the trunking. Fittings are suspended from the trunking on a specially designed assembly having T-bolts which are inserted into the trunking and given a 90 degree twist for fixing. The designers have devised a full range of accessories, such as junction pieces which are screwed to the trunking, conduit slings which fit over the trunking and can carry auxiliary services and an ingenious terminal connector which enables tappings to be made at any point along the trunking without stripping the insulation off the conductor or using terminal blocks. There is also a cover plate section which clips into the underside of the trough and can easily be removed by hand when inspection or cabling is carried out.
Siemens Edison Swan Ltd., 155 Charing Cross Road, London, W.C.2. Telephone Gerrard 8660.



2, a section of Siemens' trunking to which a junction piece is being screwed.

Light fitting

A recent addition to the Troughton and Young range is a general purpose ceiling fitting, which was designed to conform with MOE requirements but is not, of course, confined to use in schools. It is produced in three forms, having tube suspension, 3, or fixed direct to the ceiling. The diffuser is 12 in. maximum diameter and constructed in an anti-static and light stabilized plastic. The lamp holder cover and the ceiling plate are silver anodized aluminium. The lamp holder has a heat resisting phenolic body over an Edison screw porcelain interior. The fitting is designed to take lamps of 150/200 watts and has a cut off angle of 45 degrees ensuring that the lamp is not visible from normal viewing angles. Prices are 33s. 3d. for the tube suspension fitting, 31s. 6d. for the flex suspension and 26s. 2d. for the ceiling fitting, purchase tax included. Lamp holder is 3s. 6d. extra in each case.
Troughton and Young (Lighting) Ltd., 143 Knightsbridge, London, S.W.1. Telephone Kensington 3444.



3, Troughton and Young's new general purpose fitting.

[continued on page 290

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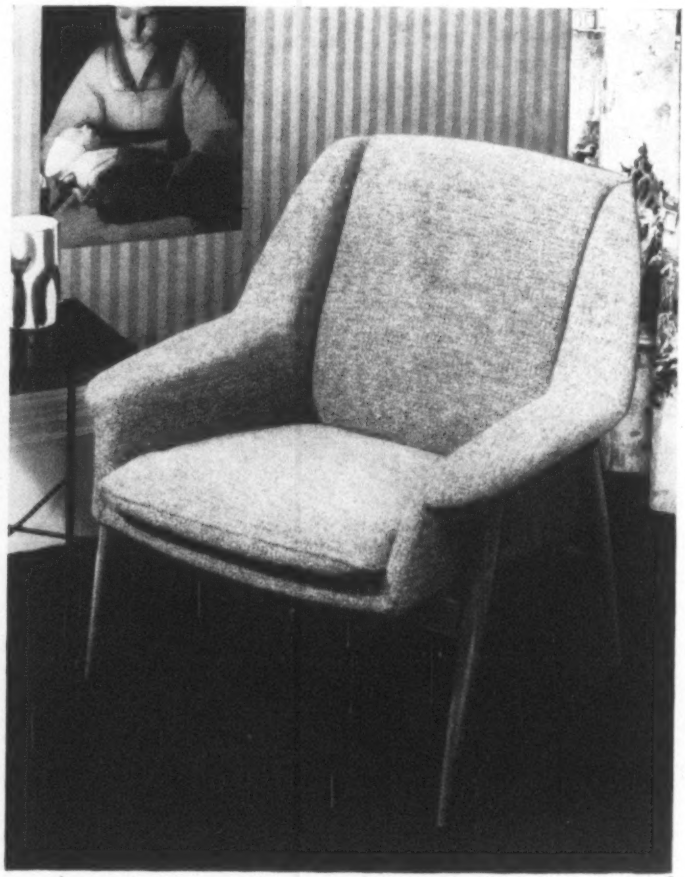

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continued from page 288]

A demountable partition

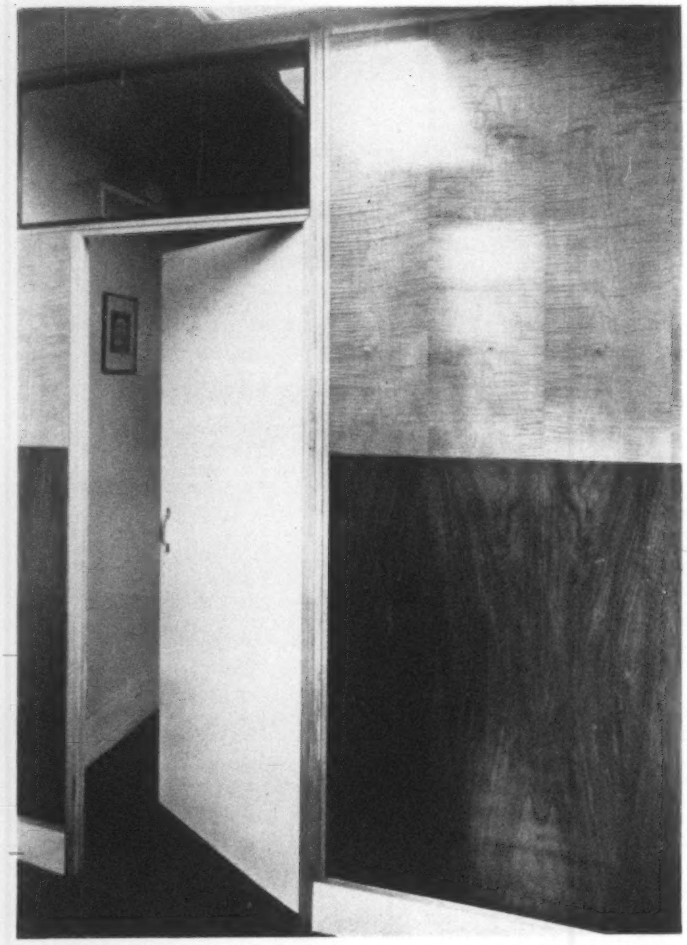
Immediately after the war a great many demountable partitions came on to the market, but since then there has been a lull. Clients have found that they do not need to move them so often as they expected and architects have found that, using them, it was difficult to provide enough sound insulation, that the inelegance of most systems was in any case unacceptable, and that many did so much damage to finishes that it was doubtful if 'demountability' had any real meaning. Lately, however, there has been more activity in this field and one newcomer is the Walway partition. This operates on the usual jacking principle, but uses friction pads to prevent damage to ceilings. Its claim to originality, however, lies chiefly in the use of separate panels for each side of the wall and in the use of a spring clip which clamps the inner and outer skin panels together by clamping both against the sub-frame. To un-clamp a panel you apply a special suction tool and pull. This use of spring clips for panels seems an advance in demountable technique: the detailing it permits (see photograph) is certainly neater than that of most partitions and the damage to the panel surface caused by demounting ought to be less.

Walways Limited, Campden House, 48a Elizabeth Street, London, S.W.1.

Prize Lighting Catalogue

After some thirty years of campaigning, architects are at last within sight of getting the kind of catalogues they want. Those firms which conform to the architect's desire have, therefore, a special claim to his attention. One firm which has been very attentive to the catalogue discussion is Troughton and Young whose literature has received an award of some kind every year at the Building Centre/RIBA trade literature competition and who have carried off this year an award of exceptional merit. Their entry was a general catalogue of lighting fittings covering, so far as we are aware, all the standard products which they make. It is to the A4 size, gives photographs, dimensioned drawings (of fixings too, where necessary), illumination data (but not always) and lists prices. This is excellent. The purist critic may well feel that there is some confusion in the mind of the compilers between impact advertising and the providing of straight information; but it is unlikely that the architect can get his glass of water without some whisky in it and he must be sincerely grateful for so well conceived an attempt to give him what he wants.

Troughton and Young (Lighting) Limited, The Lighting Centre, 143, Knightsbridge, London, S.W.1. Knightsbridge 3444.



4, a section of Walway partitioning.

CONTRACTORS etc

School at Richmond, Yorks. *Architects:* Clarke Hall & Scorer. *Quantity surveyors:* Davis, Belfield & Everest. *Contractors:* F. Shepherd & Son. *Sub-contractors: Heating:* G. N. Haden & Sons. *Metal windows:* Doodson & Bain Ltd. *Electrical:* F. Shepherd & Son. *Metal balustrades:* W. Dowson. *Insitu terrazzo:* Toffolo Jackson & Co. *Precast terrazzo:* The Mosaic & Terrazzo Precast Co. (Staines). *Joinery fittings:* R. Cattle Ltd. *Timber flooring:* J. F. Ebner Ltd. *Stage equipment:* Watts & Corry

[continued on page 292

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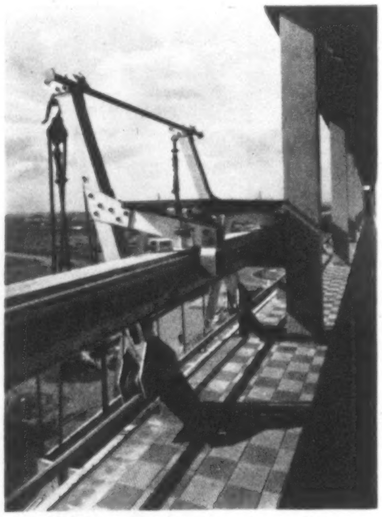
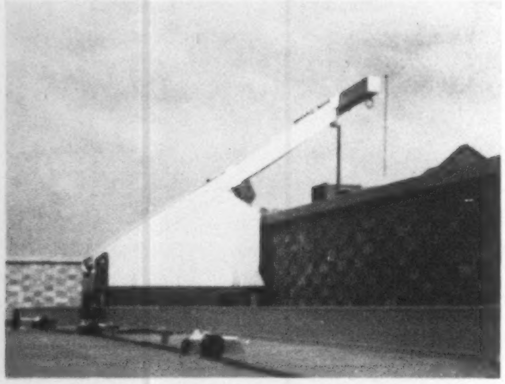


This manually operated travelling trolley was tailor-made to suit the new office block for the SHELL REFINING CO. LTD., at Stanlow, Cheshire. *Architects :* Grenfell, Baines and Hargreaves.



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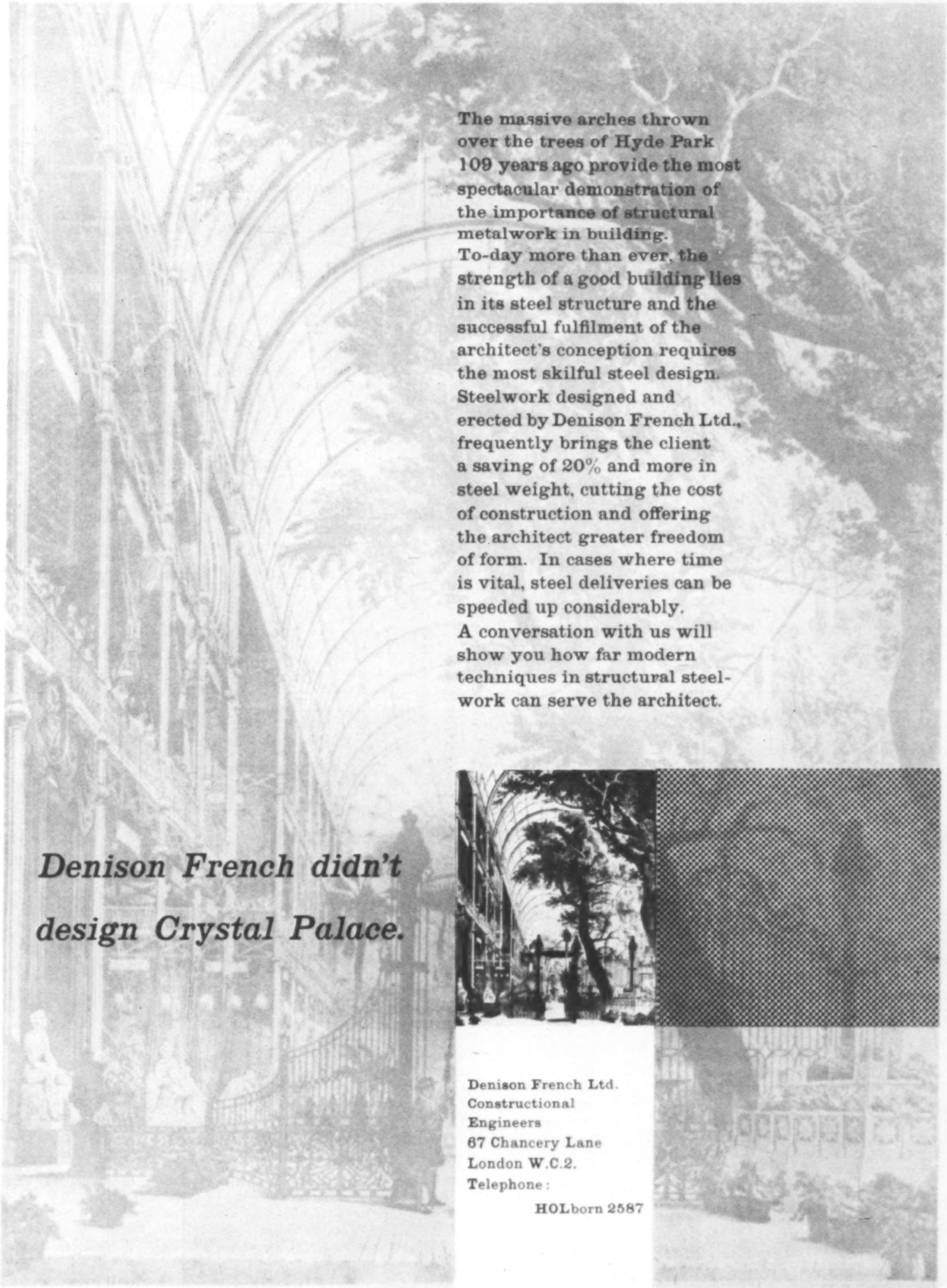

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Travel Agency at 66 Haymarket. *Architect:* Ernö Goldfinger. *Main contractors:* Frederick Sage & Co. *Heating:* Hopes Heating and Engineering Co.

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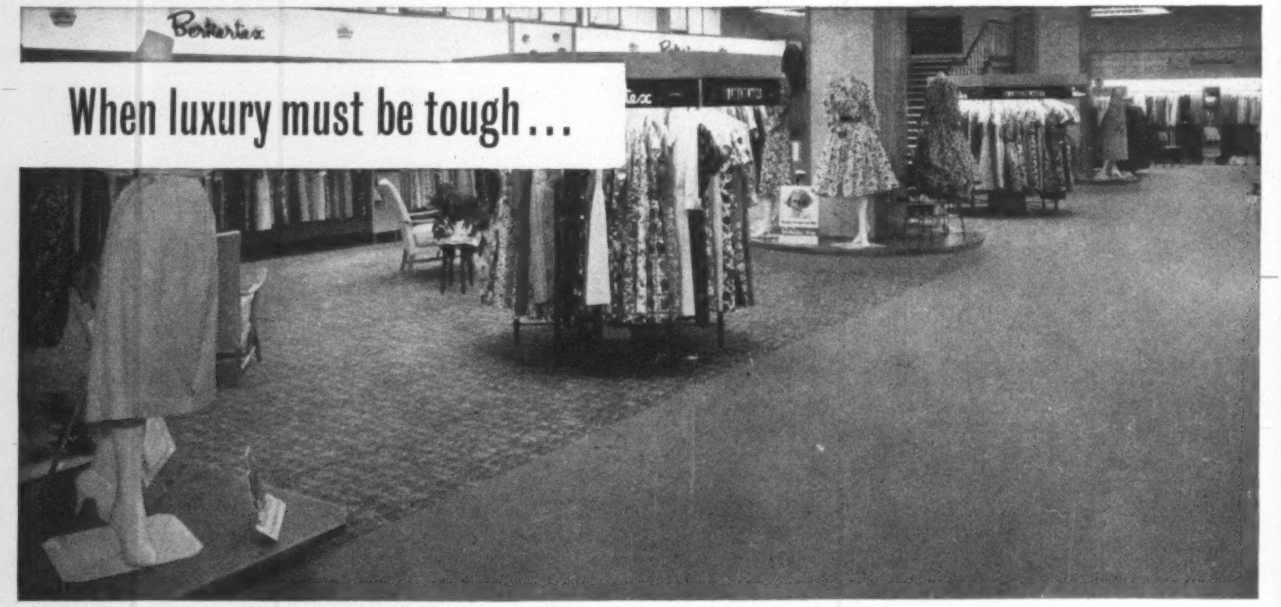

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One of the most difficult problems that besets the makers of paint is the growth of micro-organisms either on or in a paint film. Micro-organisms are often found growing upon or in paint films within or without breweries, bakeries, dairies, greenhouses and in certain factories, such as tobacco stores. They make themselves evident by unsightly blotches upon the paint, often coloured red, green, brown or black.

A botanist describes mould as fungi. Fungi show no differentiation into stem, leaf and root, like a garden plant. They are also free from chlorophyll and consequently differ entirely in mode of life and habit from a garden plant. Having no chlorophyll, and therefore no power of decomposing carbon dioxide, they are entirely dependent for nourishment, and especially for carbon, on organic compounds. It is for this reason that they are found growing freely in bakeries and breweries. Some are parasitic upon living organisms, either animal or plant, whilst others are saprophytic, obtaining their food either from dead organic substances, such as the decaying vegetable and animal matter of the soil, or from organic solutions such as the juice of fruits. The fungi comprise a large number and variety of organisms, the great majority being multicellular, but one of the unicellular fungi is the yeast plant — of great importance since it is the cause of fermentation. One of the multicellular family, pencillium has become well known because it is the parent of the antibiotic penicillin.

The fungi that cause disfigurement of paint films are invariably mixtures, but one dominant type determines the appearance and colour. Although often the colour or appearance of the fungal patch is associated with the systematic botanical name of the fungus, this can be misleading since often the genus, specie and variety must be known before adequate action can be taken to eliminate the growth.

If you have a specific mould growth problem, either inside or outside, write to:

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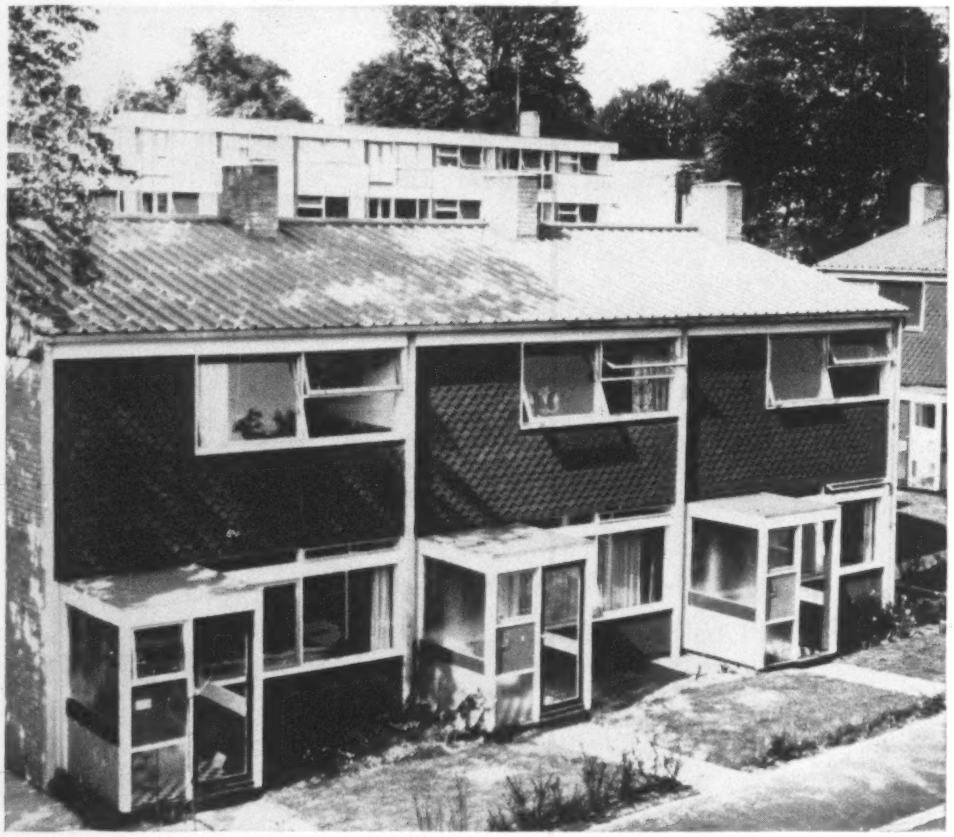

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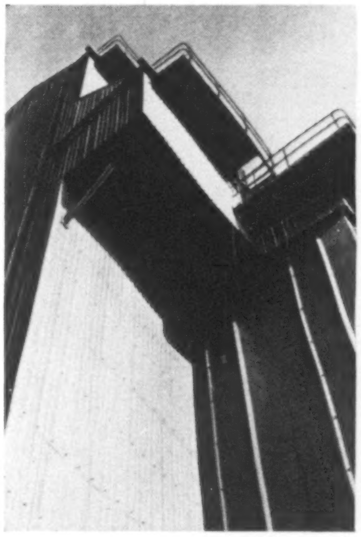

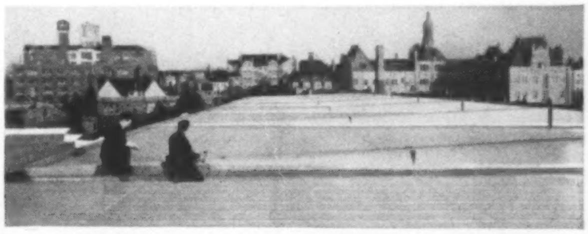

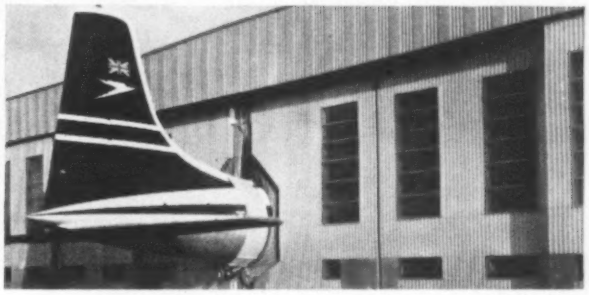

The natural durability of aluminium provides a sound economical answer to the protection of buildings in aggressive industrial atmospheres. The Bibby Ltd. mill (above) was clad in corrugated aluminium sheet by ROBERTS ADLARD & COMPANY LTD.

The illustration (top right) shows the troughed aluminium sheet used on the 22,000 sq. ft. roof of the Cardiff Arms Park South Stand which not only greatly reduces maintenance problems but enables a daring cantilever construction with a 50 ft. overhang. Designed by W. S. Atkins & Partners. Roofing contractors: JOHN BLAND & CO. LTD., CARDIFF.

The 48 sliding doors of this 'wing hangar' at London Airport will never need painting because they are clad in mansard aluminium sheet. Although normally motorised, the considerable savings in weight enable one man to move —without difficulty—three of the 32 ft. high by 23 ft. wide doors coupled together. Constructed by MORFAX LTD. *for B.O.A.C.*
Consulting Engineers: Bernard L. Clark & Partners.

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TBW/N12

when hygiene is vital

fireclay

SANITARY FIRECLAY
TECHNICAL BUREAU
57 GREAT GEORGE ST. LEEDS 1

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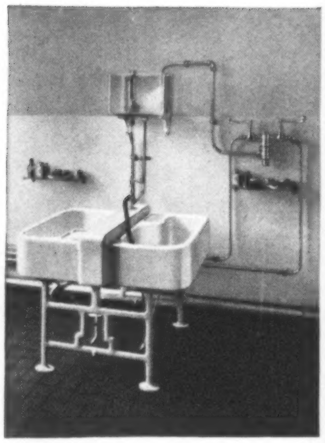

A fully illustrated booklet, published in the interest of more and better hygiene and sanitation is available on request.

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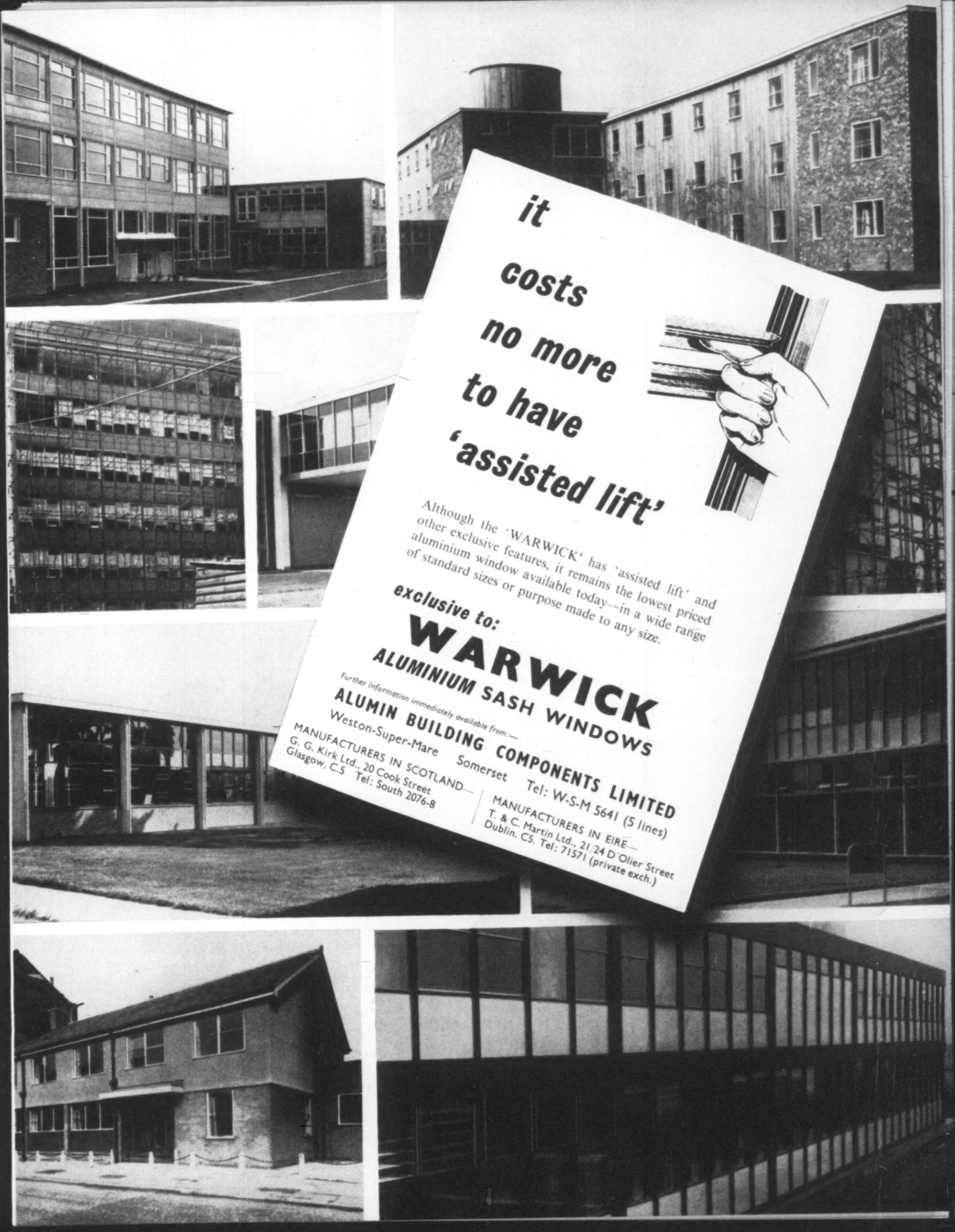

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surface patterning

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Architect: W. S. Frost, A.R.I.B.A., A.M.T.P.I.
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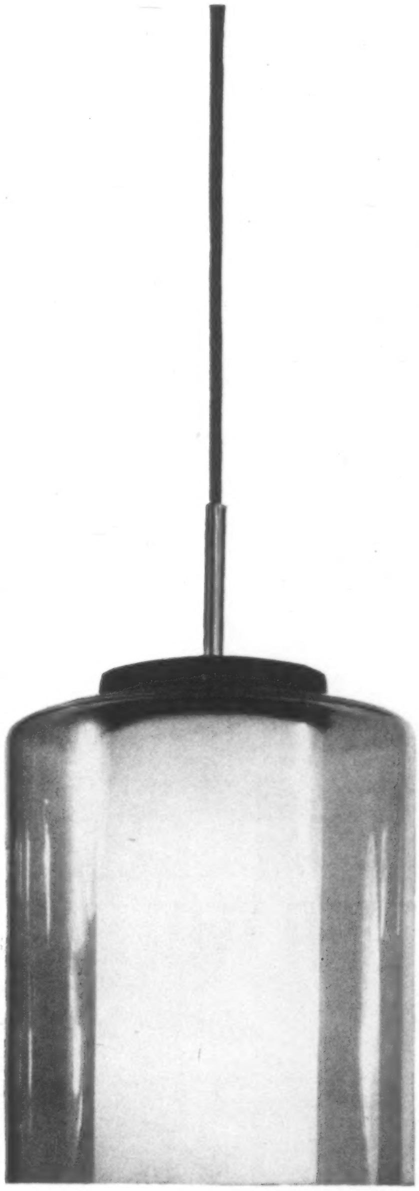
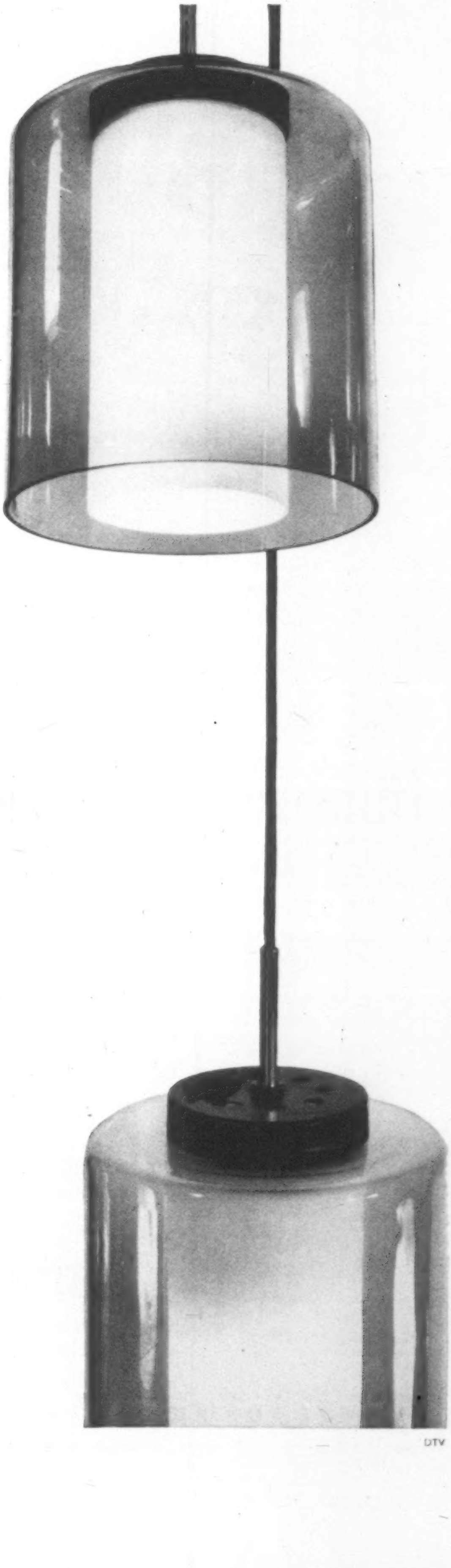
P5

atlas 'finlandia'





The superb, bold simplicity of modern Scandinavian glass can be seen in this range of Atlas fittings based on an original design by TAPIO WIRKKALA. It achieves a remarkable combination of colour effect, elegance and functional efficiency.

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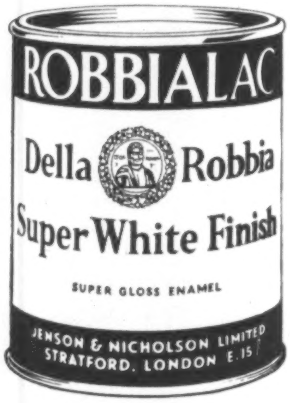
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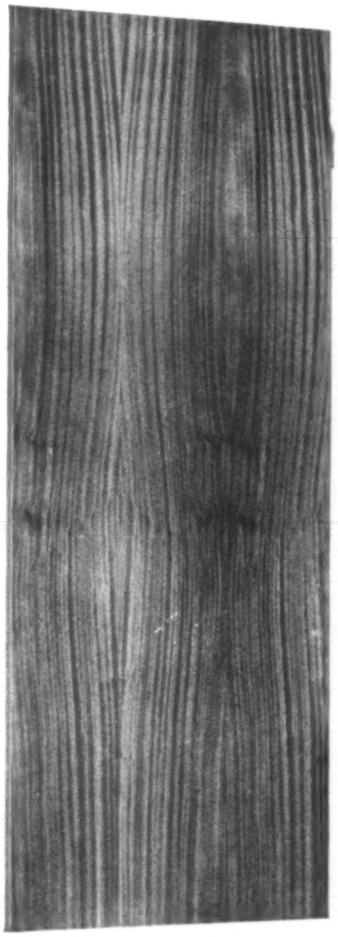
the quality is
unmistakable



Bird's eye, worm's eye, slant eye or even x-ray eye, whichever way you look at them the quality is there, unmistakable. It is the kind of quality which lasts year after year whatever the conditions. **Designed** construction, the finest seasoned timber obtainable, first class workmanship and finish. These give LEADERFLUSH Flush doors their quality.

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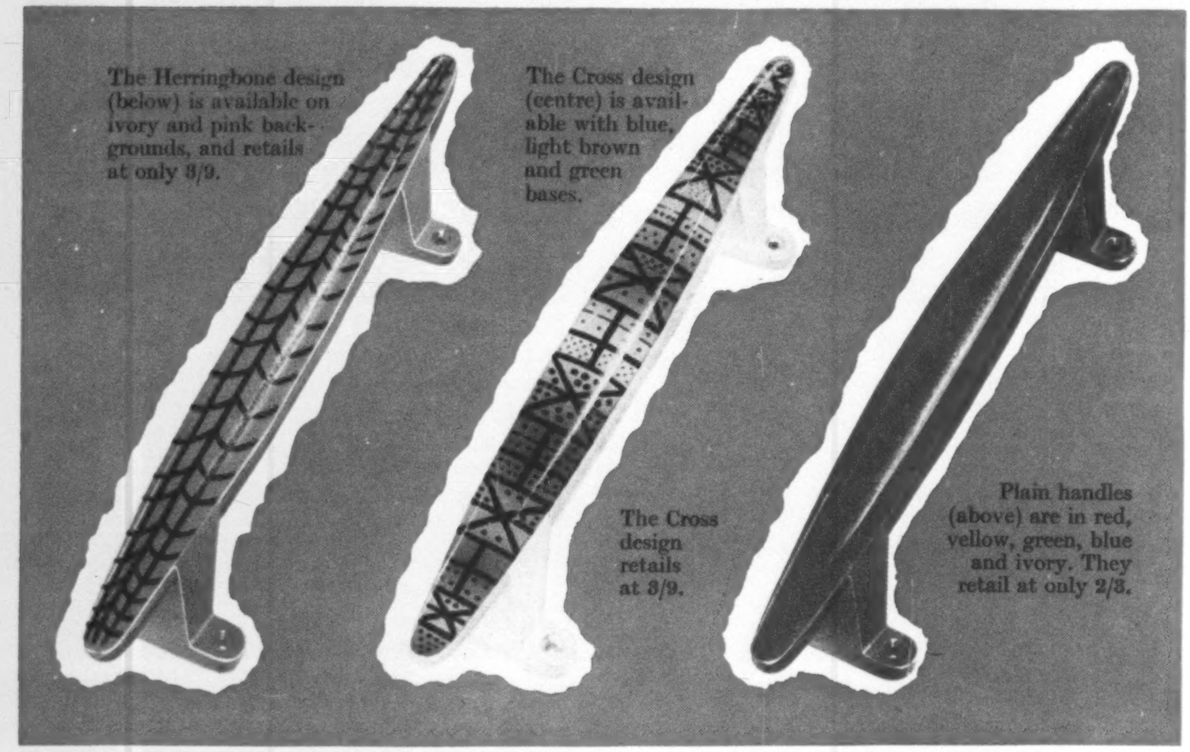

The Herringbone design (below) is available on ivory and pink backgrounds, and retails at only 3/9.

The Cross design (centre) is available with blue, light brown and green bases.

The Cross design retails at 3/9.

Plain handles (above) are in red, yellow, green, blue and ivory. They retail at only 2/3.

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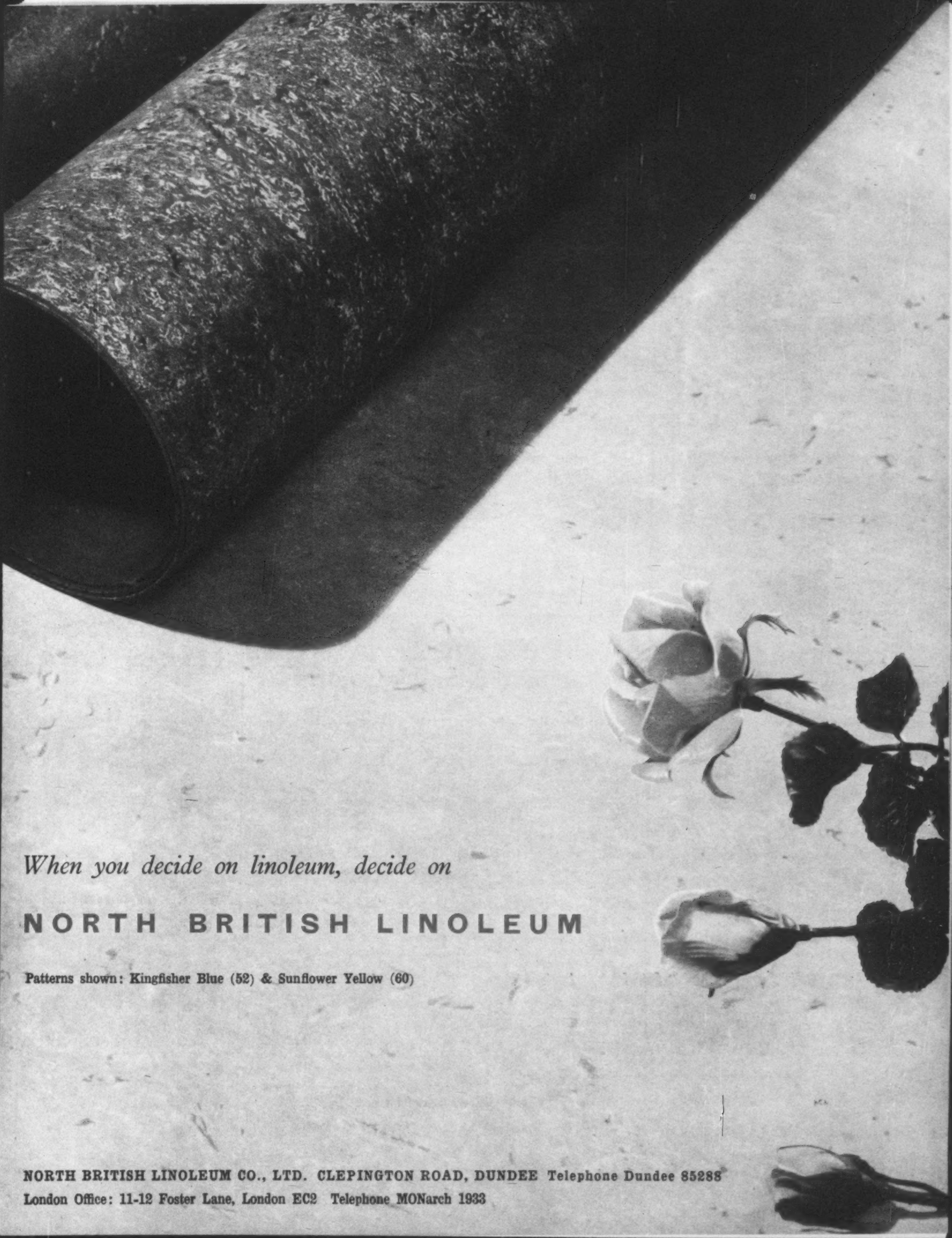

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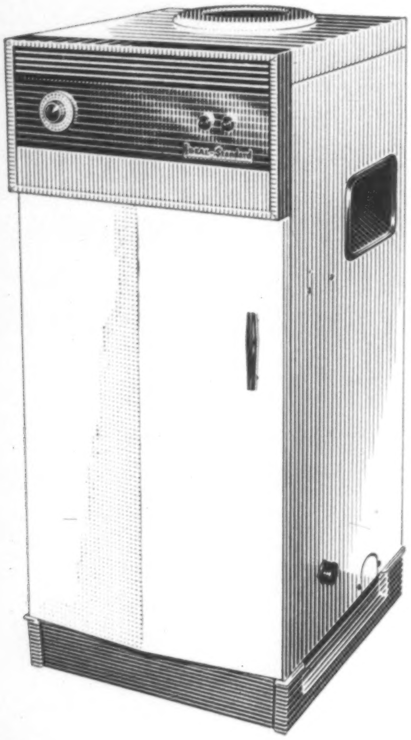

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- The fuel/water efficiency is 80% based on the gross calorific value of the gas.
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puts real meaning into the phrase 'fully automatic'

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'Everglos' sink and drainer unit made from 'Perspex' by P & S Plastics Ltd., Cirencester

P & S Plastics Ltd. make the sink and drainer units modern homemakers want—they make them from colourful 'Perspex'

Many leading firms are today making their sink and drainer units from 'Perspex' acrylic sheet. Firms like P & S Plastics Ltd. (whose 'Everglos' sink and drainer is illustrated above) know that modern homemakers want bright colourful, hygienic kitchen fittings—and they know that 'Perspex' gives those advantages.

Sinks and drainers made from 'Perspex' will not rust, chip or corrode. They are light in weight and are completely hygienic (one-piece moulding means no hidden germ traps). They are smooth, warm and easy to clean. They are quiet, too, and are unaffected by boiling water, disinfectants, acids and household cleaning fluids. With 'Perspex', the colour goes all through—is not just on the surface—and a wide range of gay, modern colours is available.

Despite all these outstanding advantages, sinks and drainers made from 'Perspex' are available at an extremely reasonable price.

Sinks and drainers are made from 'Perspex' by
Arnoplast Ltd. ('Lustrelite'), English Rose Kitchens Ltd. ('Anemone', 'Countryman'), Harold Moore & Son Ltd. ('Moorecraft'), Orbex Ltd. ('Orbit'), P & S Plastics Ltd. ('Everglos'), Peerless Built-In Furniture Ltd. ('Acrylasink'), Troman Bros. Ltd ('Crelene'), Thermo Plastics Ltd., Wokingham Plastics Ltd.

'PERSPEX'

'Perspex' is the registered trade mark for the acrylic sheet manufactured by I.C.I.

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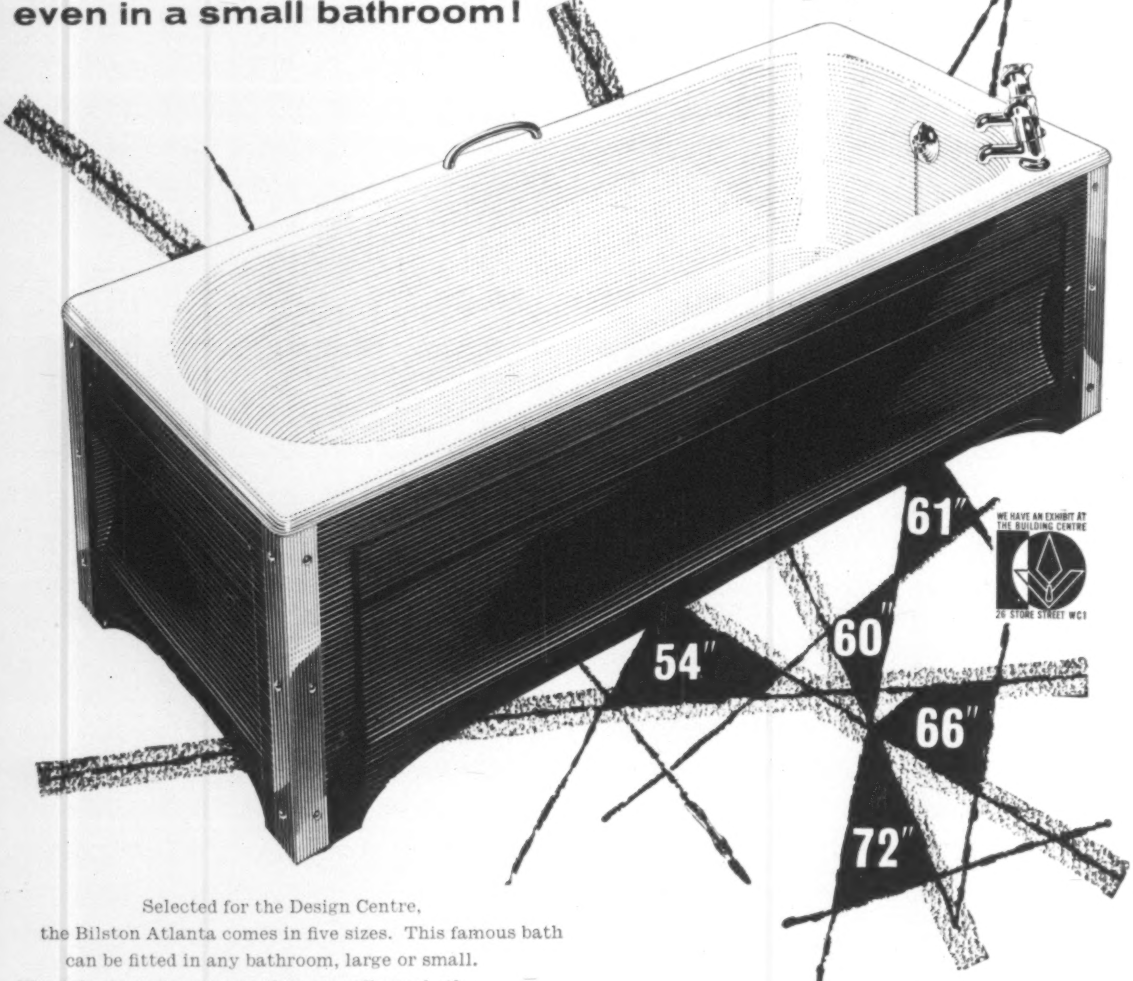
A Bilston ATLANTA

even in a small bathroom!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Colours. The Bilston range includes white, or the exact colour required for any decorative scheme.

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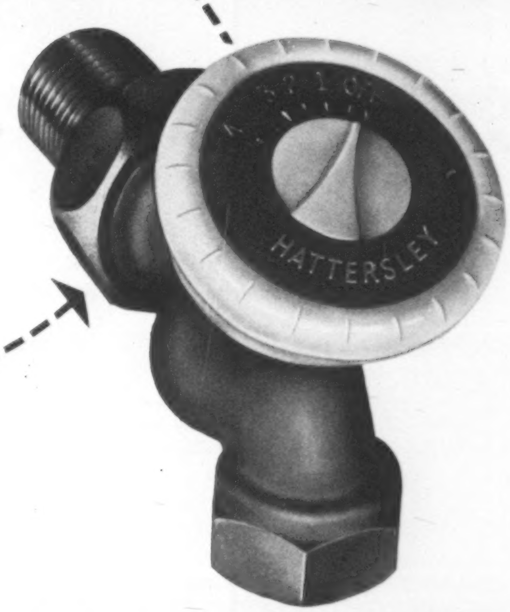
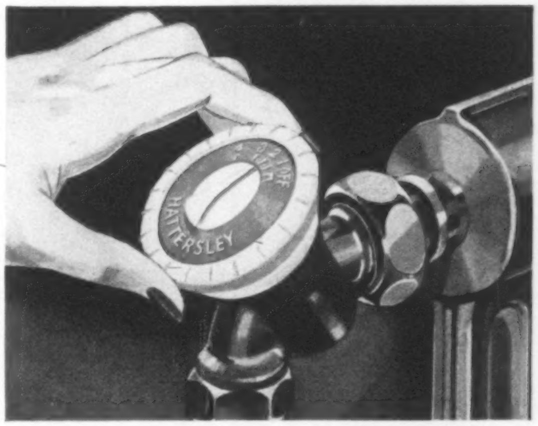
a revolutionary NEW Central Heating Regulator by HATTERSLEY



Smart and stylish, as modern as the moment, this new Hattersley Regulator is the perfect choice for contemporary installations up to 200°F. and 100ft. head. The entirely new "Switch-on" fingertip adjustment automatically regulates the radiator heat output. A quarter turn of the ivory coloured heat-resisting control head permits a range of adjustment from fully open to fully closed, whilst the grey indicator plate shows the exact setting at a glance. The complementary ivory and grey of the head and indicator harmonise perfectly with any decor.

An important feature of the Regulator is its extremely low resistance to flow. It can be used on any part of a domestic heating system and no other type of control valve is necessary. The Regulator is precision engineered with a cast gun metal body. Wheel and Lockshield patterns in Standard and Chromium Plated finish are available with connections for either Iron or Copper Pipes.



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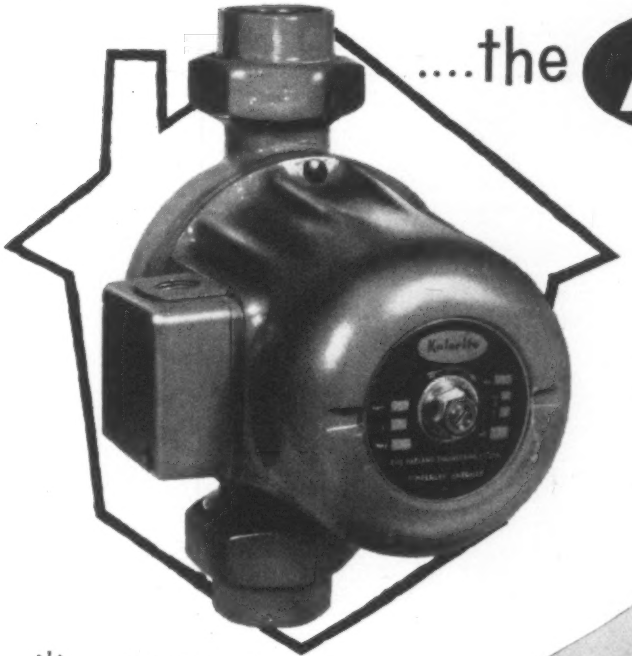

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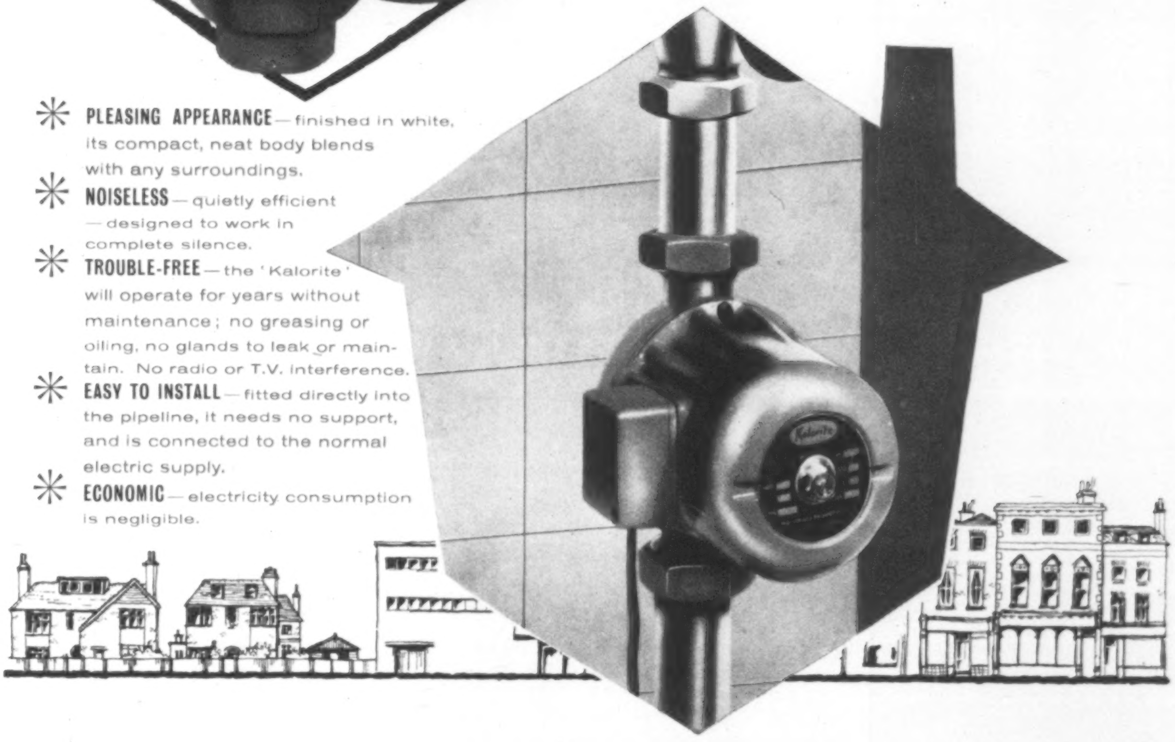

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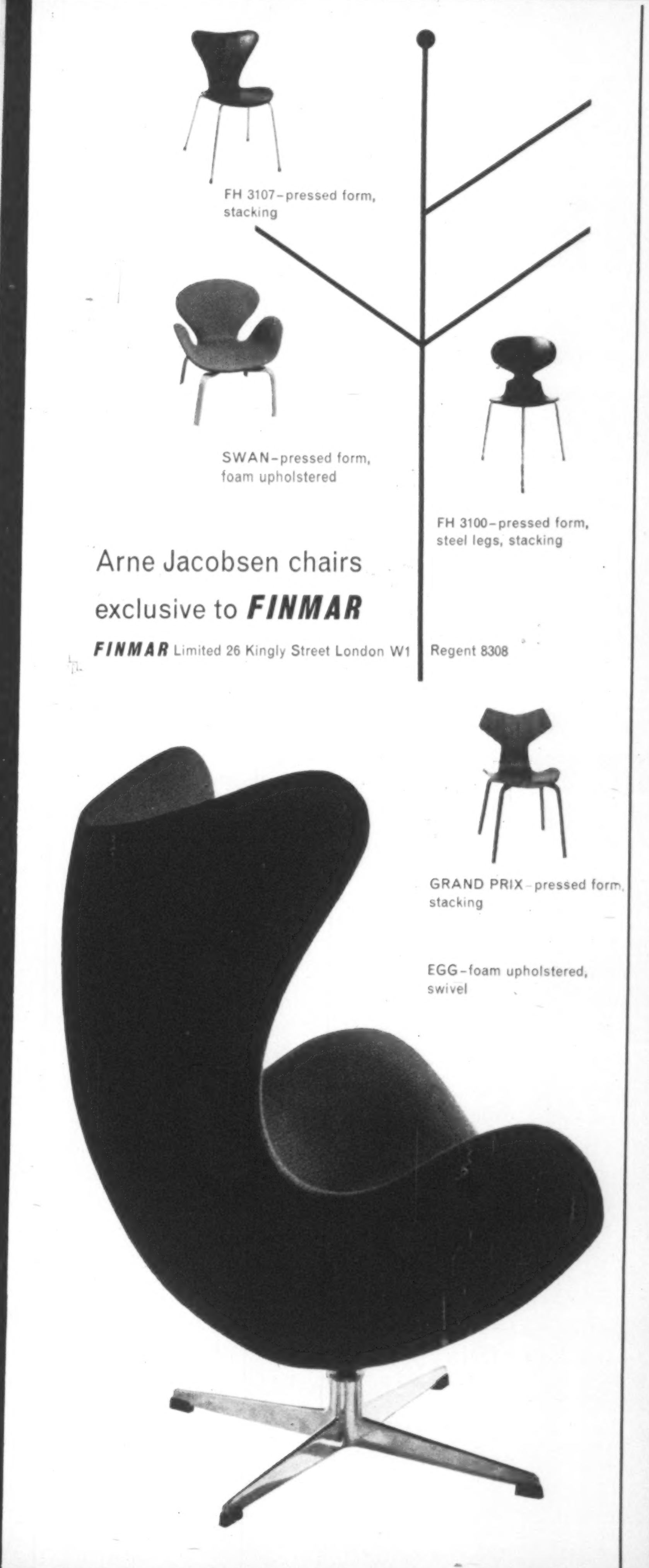

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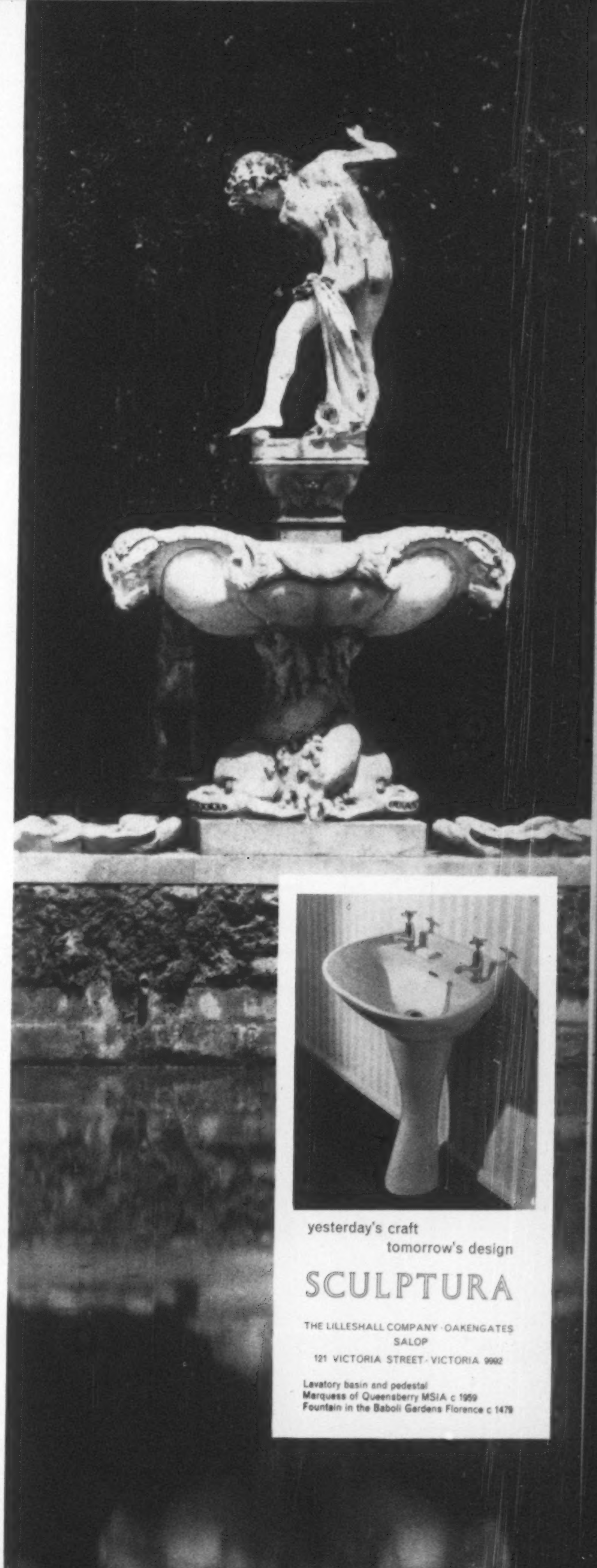

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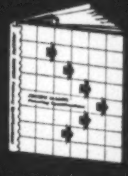

Practising architects are invited to write for this helpful book—"Joseph Mason Painting Specifications"

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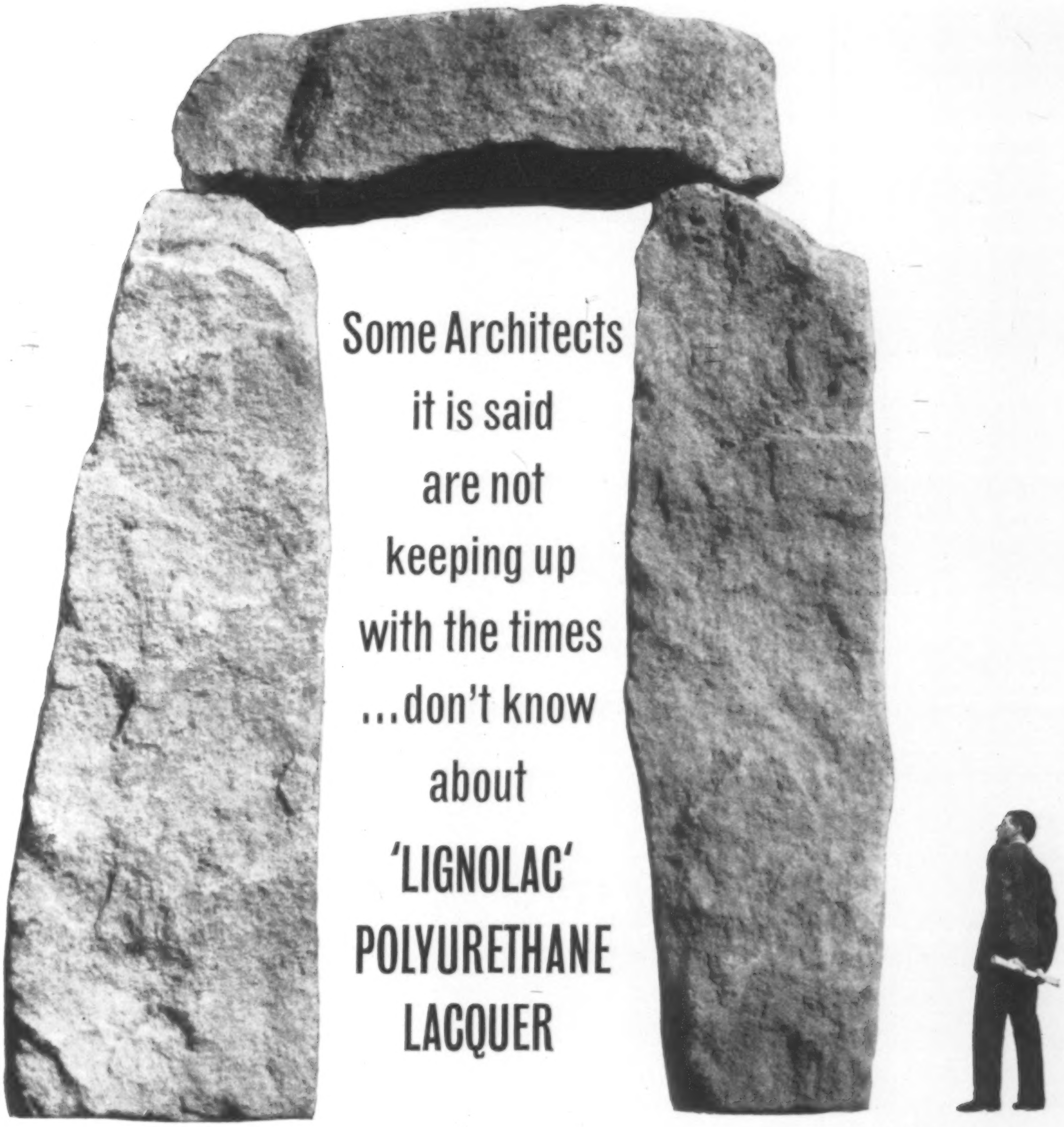

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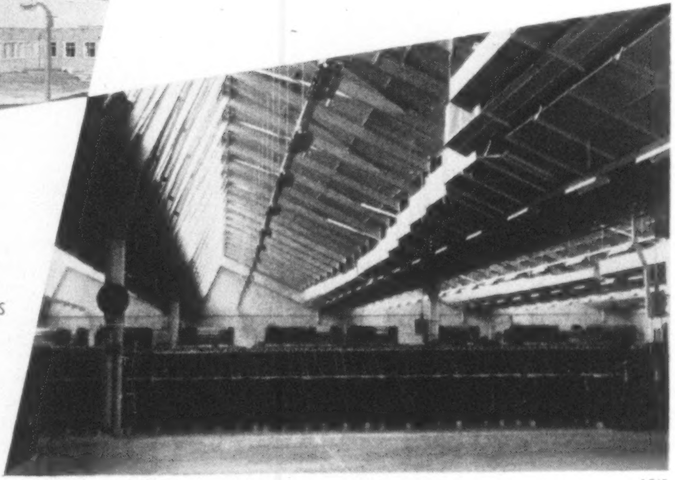

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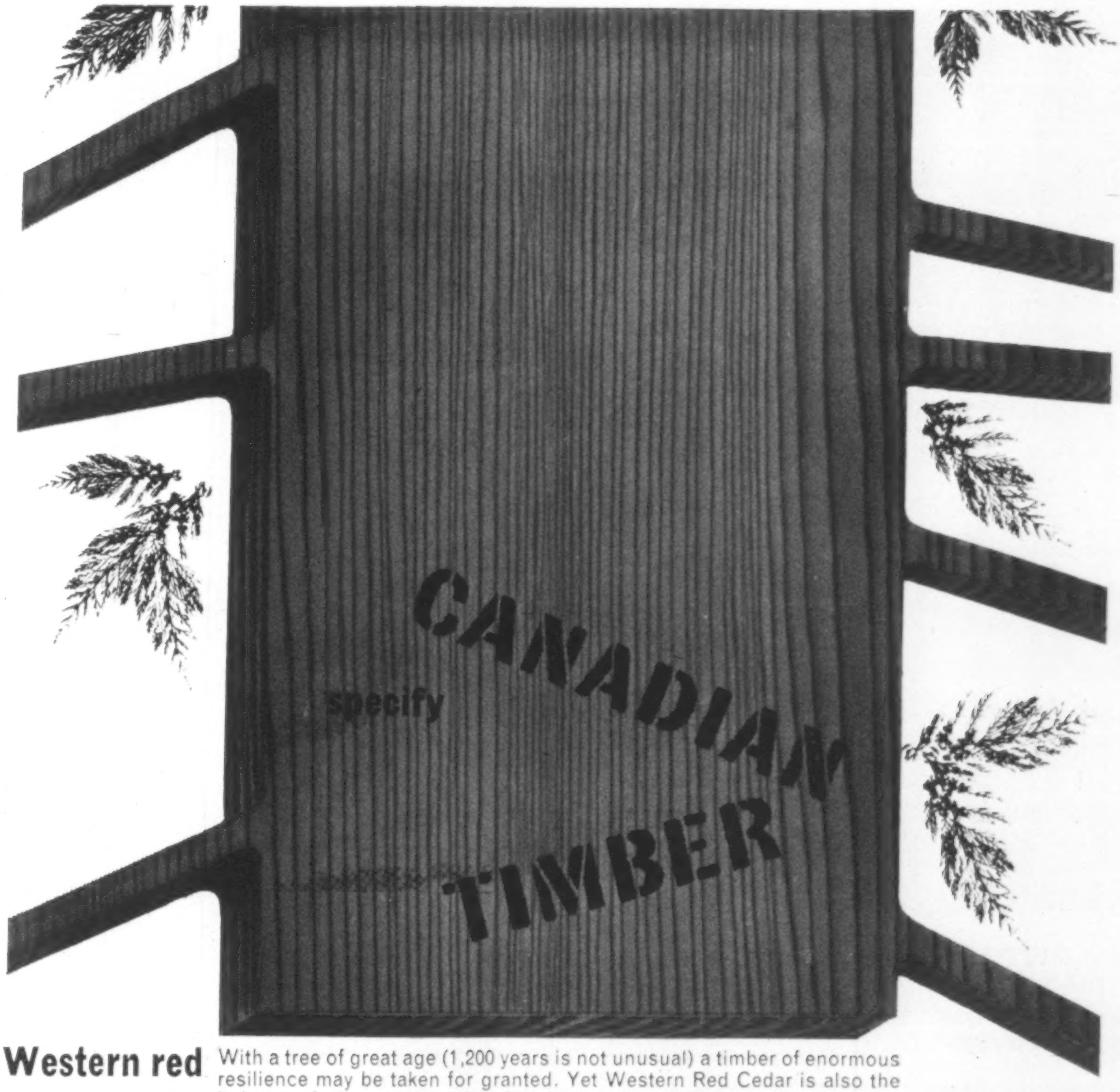

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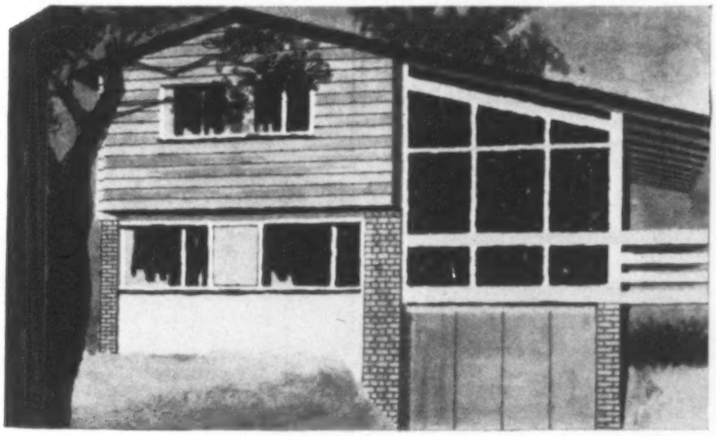
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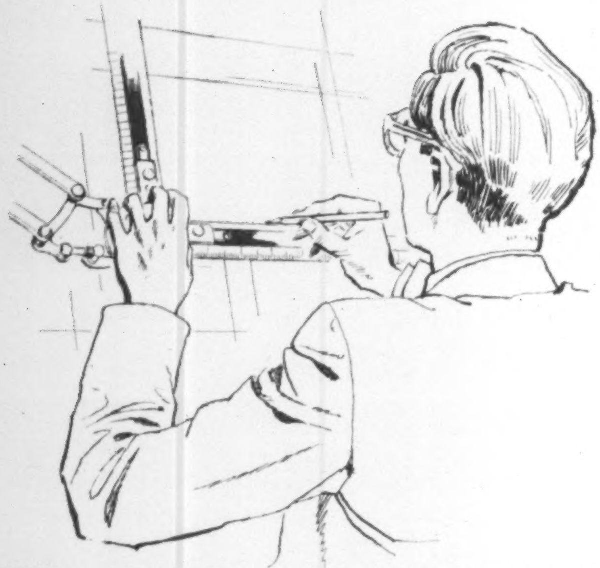

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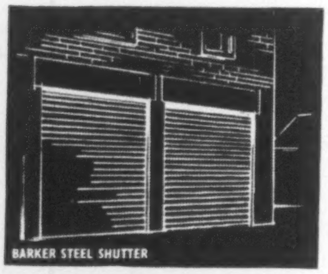

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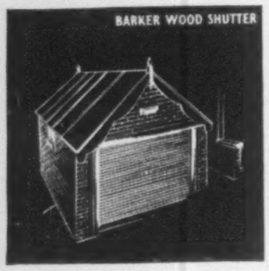

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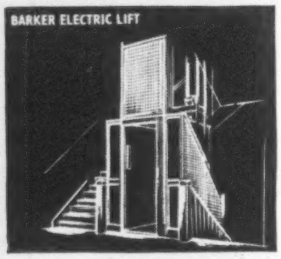

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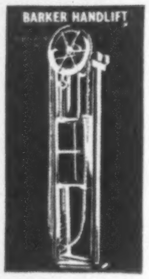

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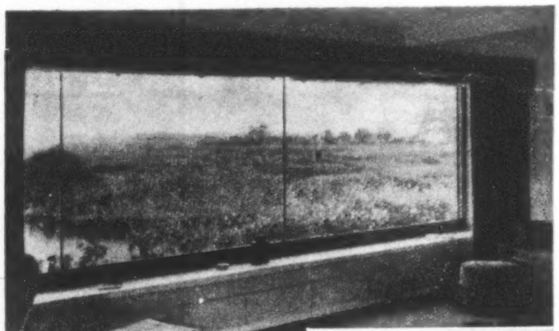

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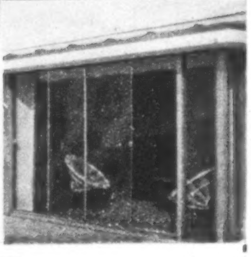

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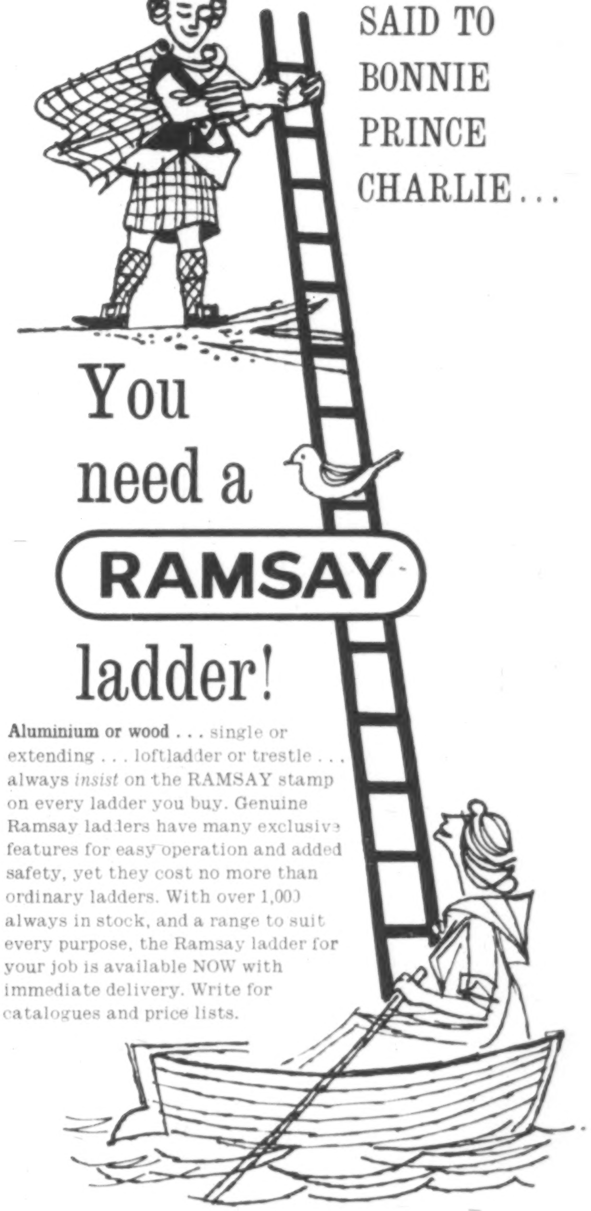

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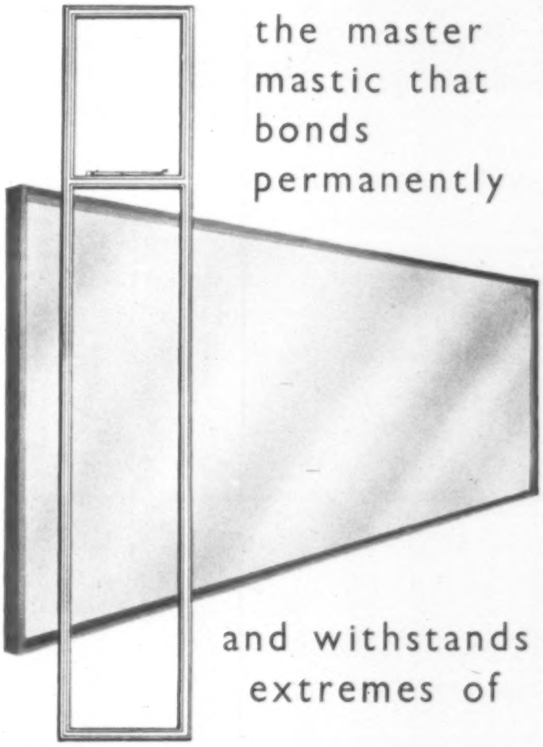

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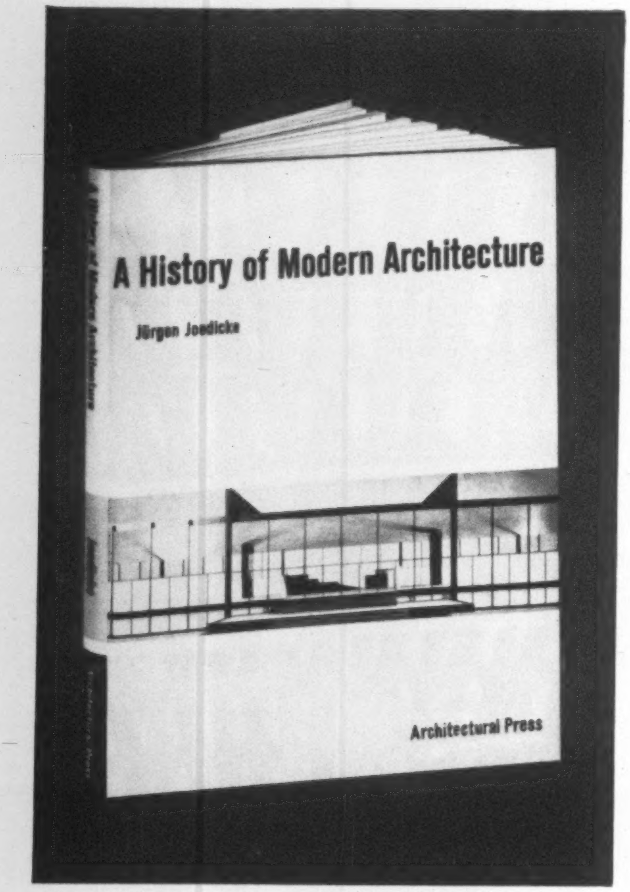

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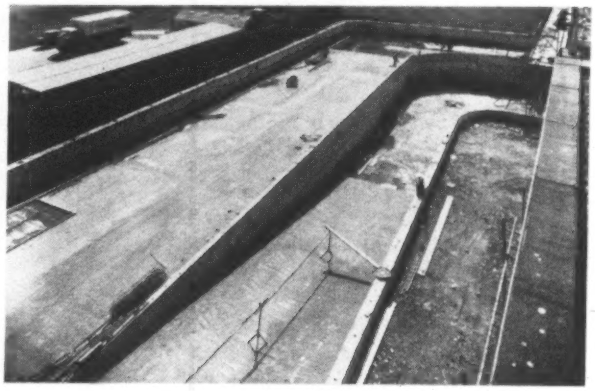

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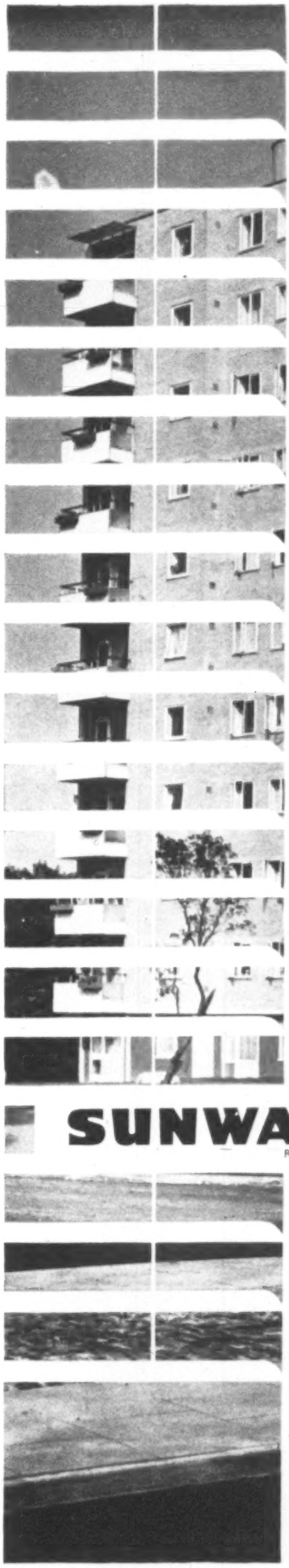

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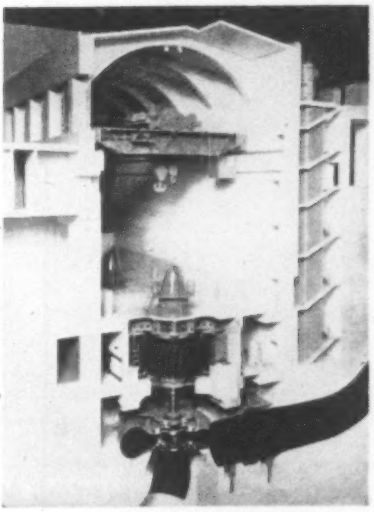

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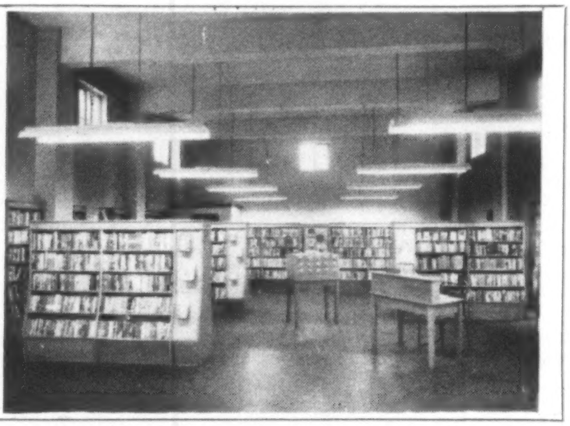

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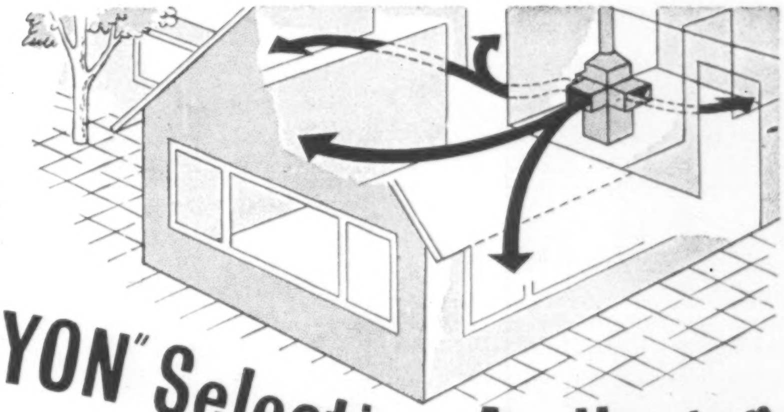

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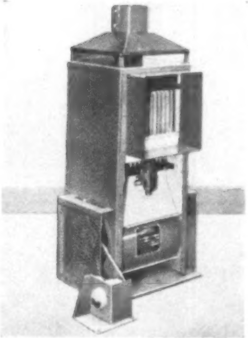

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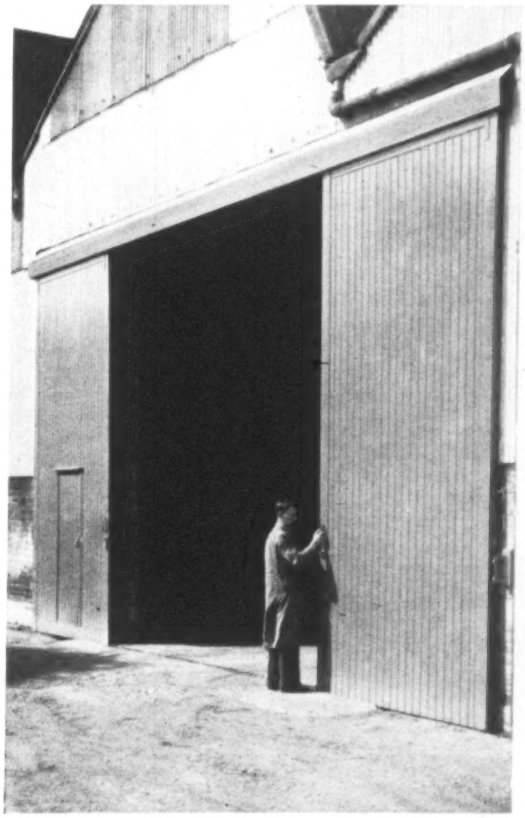

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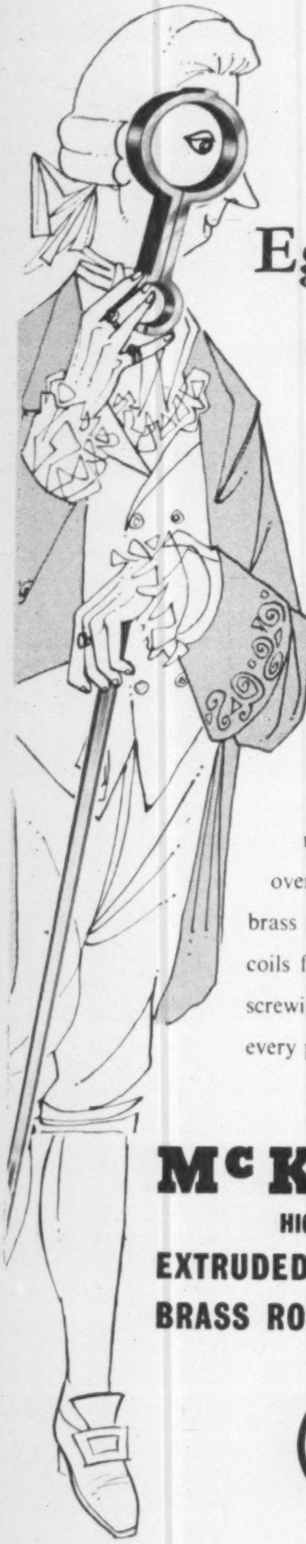

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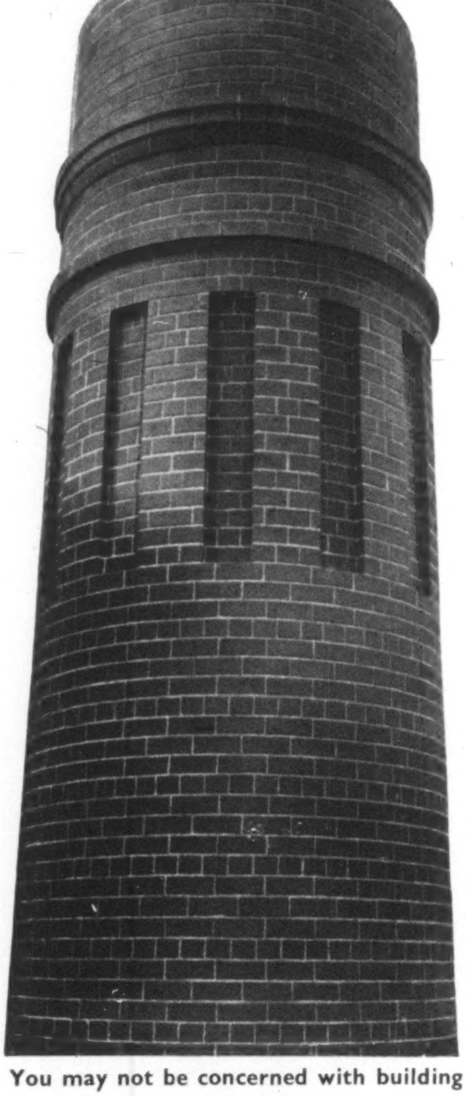

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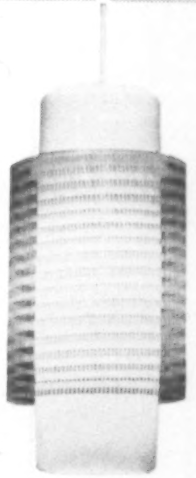
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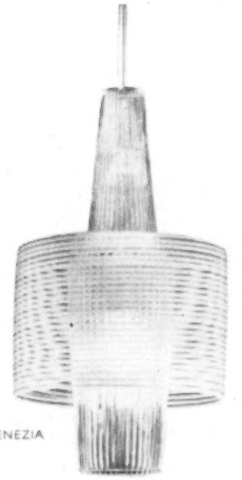
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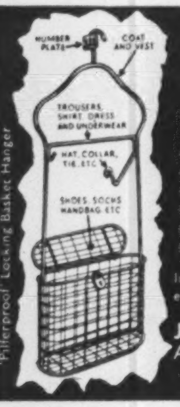
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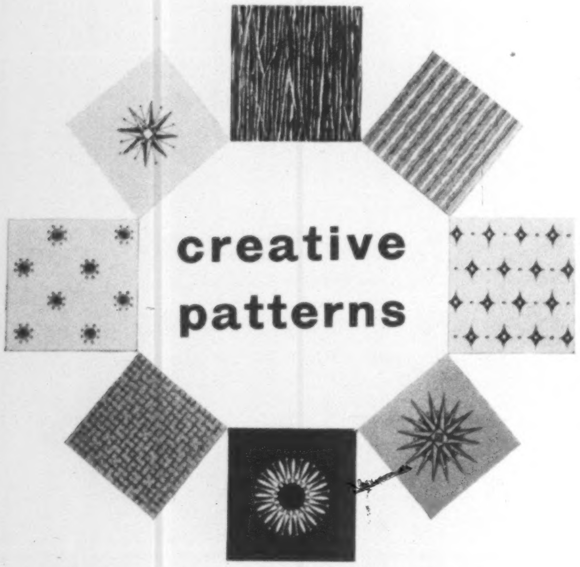

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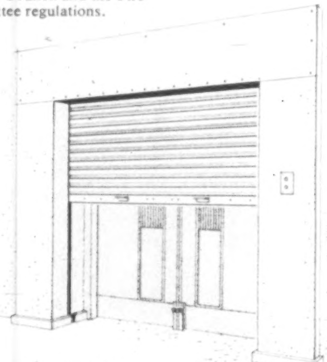

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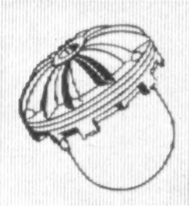

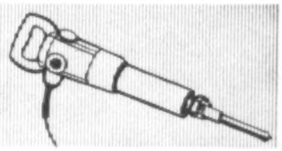

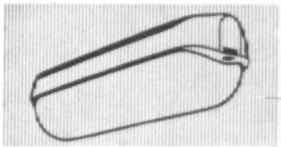

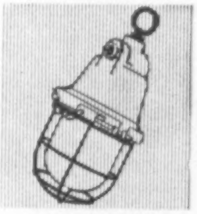

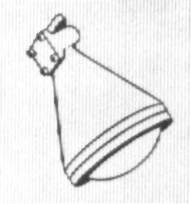

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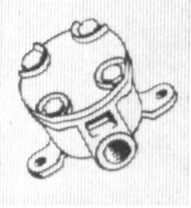

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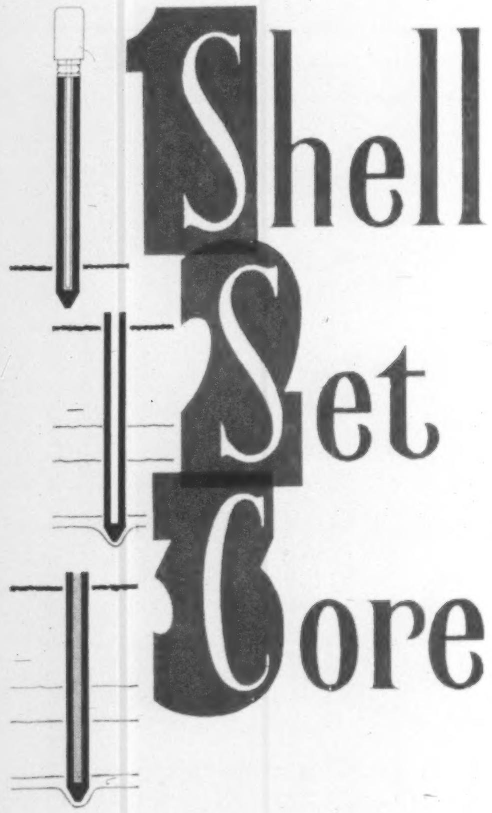

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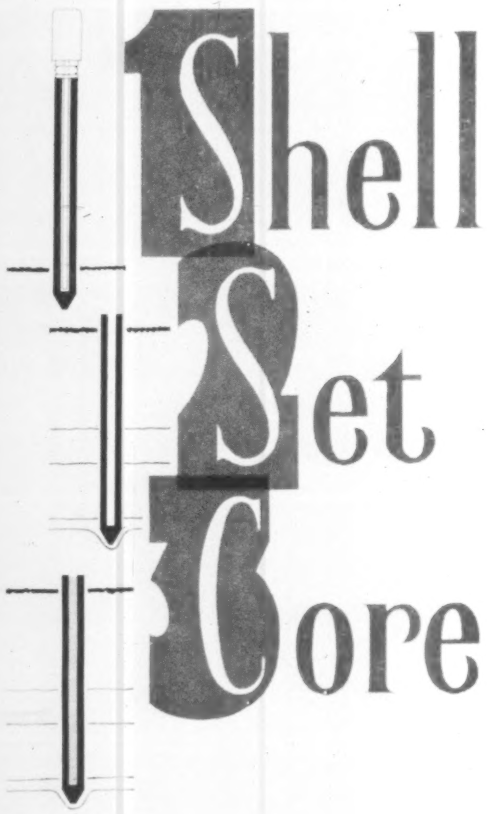

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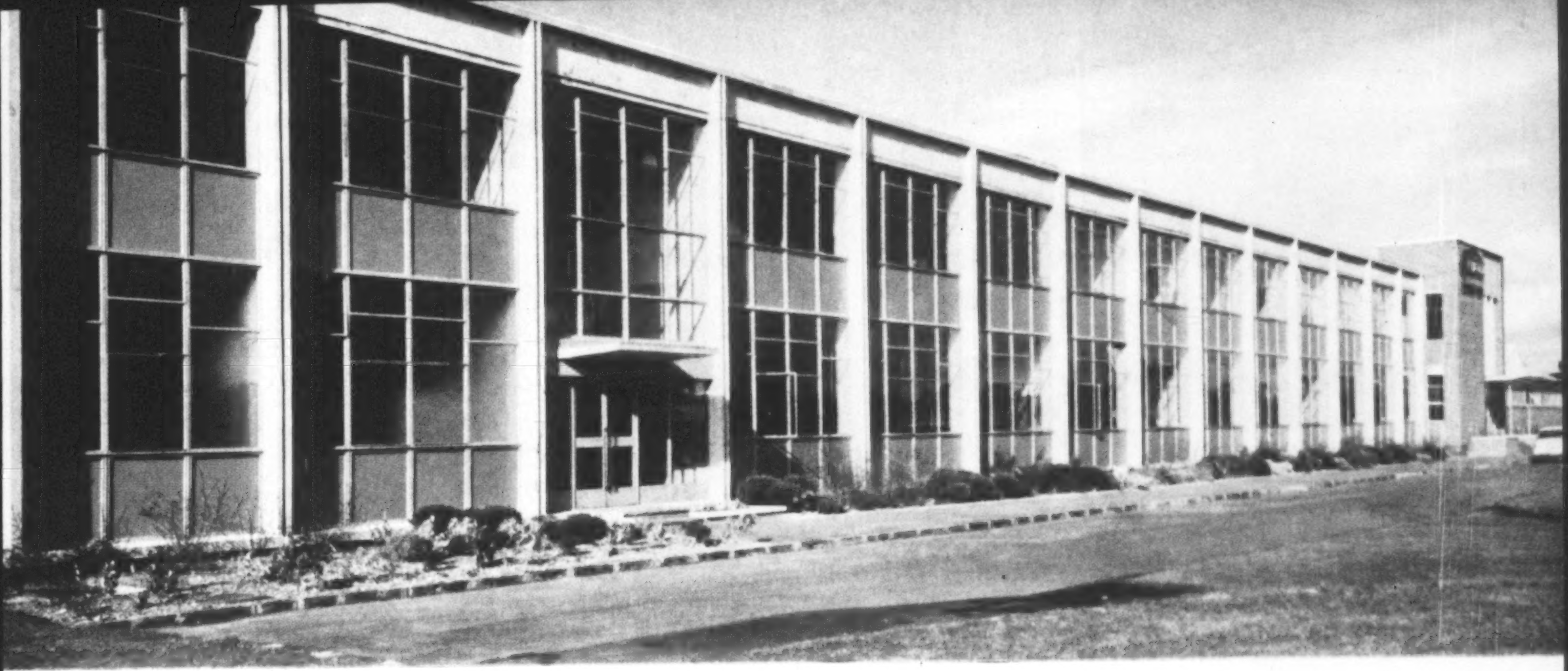

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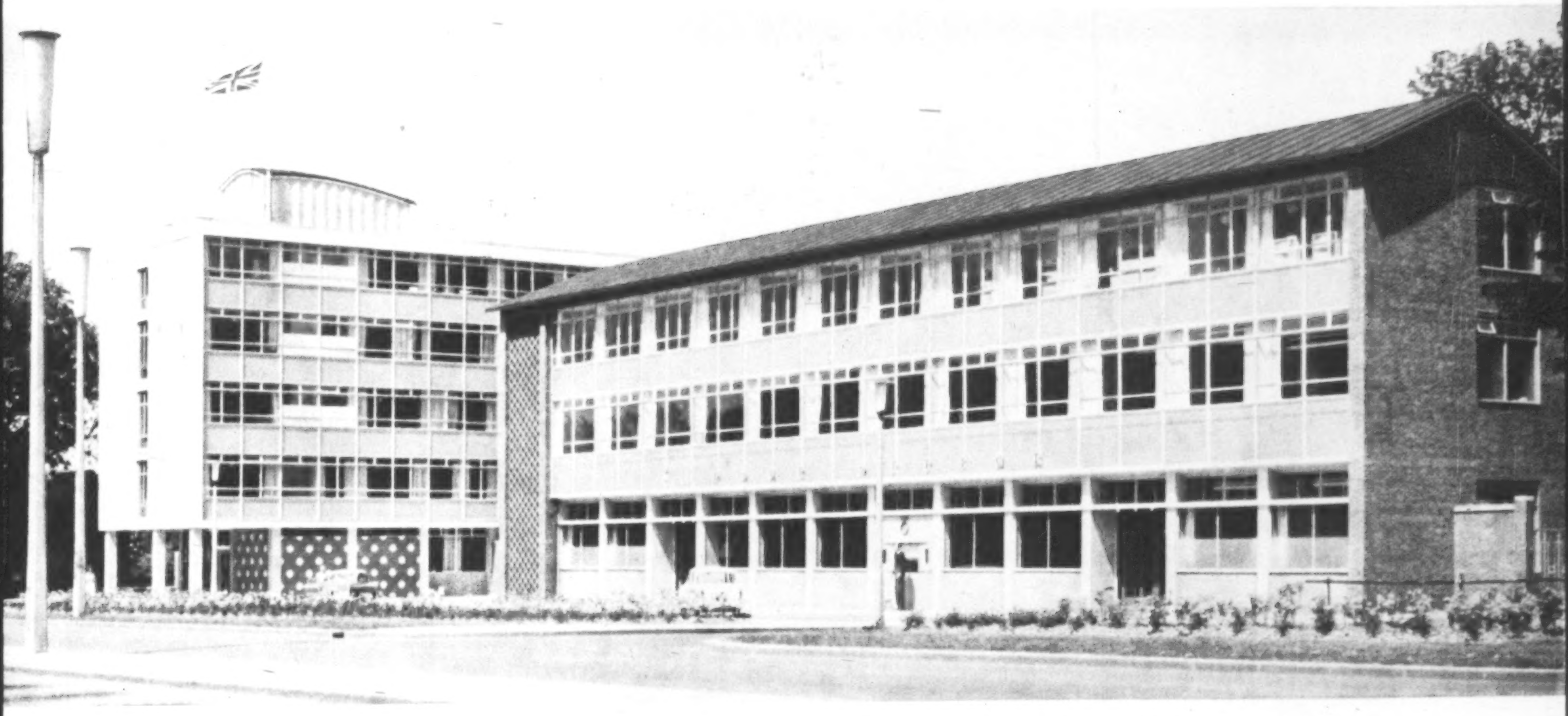

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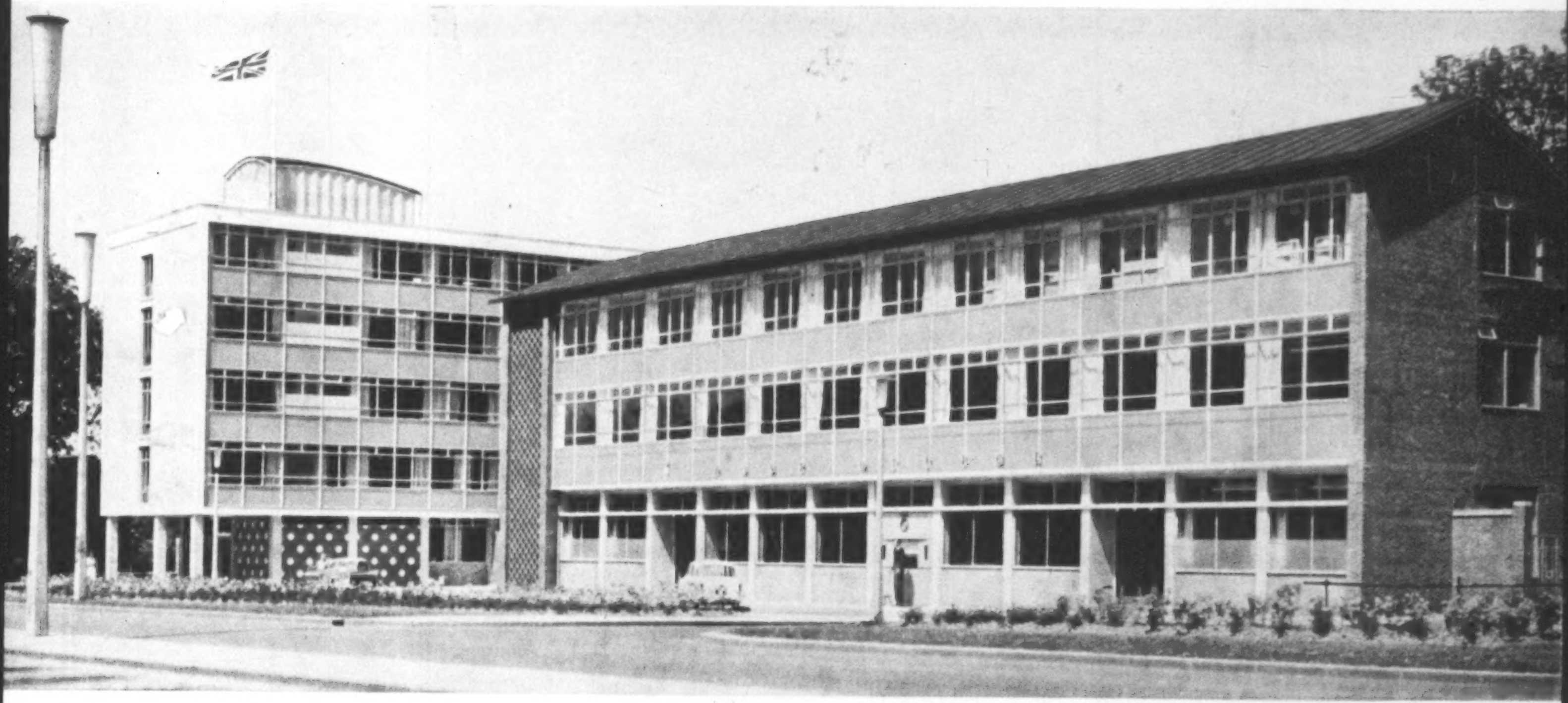

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